

EXHIBIT 14

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF NORTH CAROLINA
SOUTHERN DIVISION
Civil Action No. 7:23-cv-00897

IN RE: CAMP LEJEUNE WATER LITIGATION

THIS DOCUMENT RELATES TO:
ALL CASES

VIDEOTAPED

DEPOSITION OF: MORRIS MASLIA

DATE: March 13, 2025

TIME: 9:14 a.m.

LOCATION: BELL LEGAL GROUP
219 North Ridge Street
Georgetown, SC

TAKEN BY: Counsel for the Defendants

REPORTED BY: Lauren A. Balogh, RPR

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10 ALSO PRESENT:

11 Jon Landau, Videographer

12 Leonard Konikow (via videoconference)

13 Deanna Havai, Motley Rice

14 (Via videoconference)

15 Alex Spiliotopoulos

16 (Via videoconference)

17 Timothy Thompson

(Via videoconference)

18 Bill Williams (via videoconference)

19
20
21 (INDEX AT REAR OF TRANSCRIPT)

1 THE VIDEOGRAPHER: The following will
2 be the videotaped deposition of Morris Maslia in re
3 Camp Lejeune Water Litigation versus United States
4 of America, File No. 7-23-CV-897. Today's date is
5 March 13th, 2025 and the time is 9:14 a.m. We are
6 here today at 219 Ridge Street, Georgetown, South
7 Carolina. The court reporter is Lauren Balogh and
8 the videographer is Jon Landau.

9 At this time I will ask all attorneys
10 present to please state their names and whom they
11 represent for the record.

12 MR. DEAN: Good morning. Kevin Dean
13 here on behalf of the PLG and the witness.

14 MR. BELL: Edward Bell on behalf of the
15 plaintiff.

16 MR. ANWAR: Haroon Anwar on behalf of
17 the United States.

18 MS. SILVERSTEIN: Kaylie Silverstein on
19 behalf of the United States.

20 THE VIDEOGRAPHER: Do you want the
21 people on the Zoom to do it?

22 MR. DEAN: It's up to you.

23 MR. ANWAR: The court reporter can take
24 it down. That's fine.

25 MR. DEAN: Yeah.

1 THE VIDEOGRAPHER: Okay. All right.
2 You may swear the witness, please.

3 MORRIS MASLIA
4 being first duly sworn, testified as follows:

5 EXAMINATION

6 BY MR. ANWAR:

7 Q. Good morning, Mr. Maslia.

8 A. Good morning.

9 Q. My name is Haroon Anwar. I am a lawyer
10 at the Department of Justice here on behalf of the
11 United States. We've met before at your prior
12 deposition in fall 2024, correct?

13 A. September 26th.

14 Q. September 26th of 2024. Thank you.

15 A. Yes.

16 Q. You may remember that experience. I'm
17 just going to go through -- go over a few rules for
18 the deposition just so we're on the same page, but
19 I'm going to ask you a number of questions today.
20 If I ask you a question that's vague or you don't
21 understand, please ask me to clarify. Otherwise,
22 I'm going to assume that you -- you understand my
23 question. Fair enough?

24 A. Fair enough.

25 Q. Okay. And the number one most

1 important rule for the deposition today, same as
2 before, is that you are under the oath to tell the
3 truth as if you were in an actual court of law. Do
4 you understand that?

5 A. Yes, I do.

6 Q. Okay. And is there any reason that
7 you'll be -- is there any reason today that you'd
8 be unable to testify truthfully?

9 A. No, there is not.

10 Q. The court reporter is transcribing
11 everything that we're taking down, so if we could
12 try not to speak over each other and perhaps give a
13 brief pause in case your lawyer needs to object, it
14 will make for a much cleaner transcript as well as
15 a much happier court reporter. Can we agree to try
16 to do that?

17 A. Yes.

18 Q. Okay. We will try to take breaks about
19 every hour. If you need to take a break sooner
20 than that, just let me know.

21 A. Okay.

22 Q. I'm happy to accommodate you. The only
23 stipulation I would put on that is if there's a
24 pending question, I would ask that you answer that
25 question and then we -- we can take a break. This

1 is not intended to be sort of a punishment, so to
2 speak.

3 A. Understood.

4 Q. So with that I wanted to start by
5 asking you what you did to prepare for today's
6 deposition?

7 A. I reviewed every single ATSDR Camp
8 Lejeune historical reproduction report that I was
9 involved with both for Tarawa Terrace, Hadnot
10 Point. I've also reviewed my expert report that
11 was submitted to you as well as my rebuttal report,
12 and I also reviewed some published journal
13 articles.

14 Q. What were the published journal
15 articles that you reviewed?

16 A. There was a series by -- that appeared
17 in Groundwater journal by Dr. Prabhakar Clement,
18 who I think you may know, and ATSDR exposure dose
19 reconstruction program staff responded to it, and
20 then they responded to -- to ours, so it's three
21 articles in Groundwater. His was 2010 and ours was
22 2012.

23 Q. Okay.

24 A. And then I've also reviewed just some
25 articles on uncertainly analysis. An article that

1 I published in 2004 on use of -- contained some
2 historical reconstruction of some smaller sites
3 using an analytical contaminant transport system
4 model and also contained the probabilistic
5 uncertainty analyses using Monte Carlo simulation.
6 So reviewed that as well as an article by
7 Dr. Clement in 2000 at Dover Air Force Base, which
8 is identical to Tarawa Terrace and came out with
9 identical values for some of the parameters, and I
10 would, in fact, like to add that to my expert
11 report if I can.

12 Q. Okay.

13 A. I've got a copy here, if you would like
14 to see that.

15 Q. Sure.

16 MR. DEAN: Yeah, I brought a copy.

17 MR. ANWAR: Thank you.

18 MR. DEAN: You're welcome.

19 BY MR. ANWAR:

20 Q. Thank you. So this -- we'll note this
21 for the record as an additional material --

22 A. Okay.

23 Q. -- on your -- your reliance list.

24 A. Yes, yes.

25 Q. For your expert report. Thank you.

1 Aside from the articles that you -- you mentioned,
2 the ATSDR reports and -- the ATSDR modeling reports
3 for Tarawa Terrace and Hadnot Point, Holcomb
4 Boulevard, and then your expert and rebuttal
5 report, did you review any other documents?

6 A. Just my deposition from September 26th.

7 Q. Okay.

8 A. And the exhibits that you provided.

9 Q. Oh, okay. During the September 26th --

10 A. Yes.

11 Q. -- 2024 deposition?

12 A. Yes.

13 Q. Did you review any of the other expert
14 reports in the case?

15 A. I reviewed Dr. Konikow's report. I
16 reviewed Dr. Sabatini's report. I reviewed
17 Dr. Jones and Mr. Davis's post-audit report and
18 rebuttal. And I also reviewed the defense's expert
19 reports by Dr. Spiliotopoulos, Dr. Hennet, and
20 Dr. Brigham.

21 Q. Understood. And I understand just from
22 attending the depositions of Dr. Aral, Mustafa
23 Aral, Dr. Davis, Dr. Jones, and then Dr. Konikow
24 about a week or so ago -- did you listen in to all
25 of those depositions as well?

1 A. Yes.

2 Q. Okay.

3 A. With Dr. Konikow I had to step out for
4 a couple of hours.

5 Q. Okay.

6 A. To do a medical run with my dad, so --
7 but I listened, I would say, to a majority of it.

8 Q. Did you review any of the transcripts
9 from those depositions?

10 A. I -- I read them. I guess
11 Dr. Konikow's transcript, because I wasn't there
12 for part of it, I read that in its entirety. Okay.
13 The other ones, just spot, you know, spot read
14 because I was watching the entire time.

15 Q. Understood. Did you do anything else
16 to prepare for today's deposition?

17 A. Only discuss with the plaintiff's
18 attorney the logistics, again, of, I believe, the
19 first time I was deposed as a fact witness versus
20 an expert witness to them.

21 Q. Understood. And I'm not asking about
22 the substance of your conversations with --

23 A. Right.

24 Q. -- the lawyers, just the circumstances
25 of the meeting. When did you meet with the lawyers

1 to prepare for the deposition today?

2 A. Yesterday, most of the day, and on
3 Tuesday afternoon.

4 Q. Okay. Who did you meet with yesterday?

5 A. Yesterday I met with Mr. Dean and also
6 Mr. Williams.

7 Q. Was there anyone else present in that
8 meeting?

9 A. Mr. Tim Thompson. He works with
10 Mr. Williams, and that's it.

11 Q. Okay. About how long did that meeting
12 last, the one yesterday?

13 A. Yesterday, we started about 9:30 and
14 ended about 4:30, 5.

15 Q. Did you review any documents during
16 yesterday's meeting?

17 A. Yes, the same ones that I had mentioned
18 to you, and spoke about wanting to place the
19 journal article as an addition to my materials in
20 my expert report.

21 Q. Understood.

22 MR. DEAN: Not to interrupt, but you
23 might want to ask him was anybody else in
24 attendance by Zoom. Because you asked in person
25 and he may have forgotten that.

1 MR. ANWAR: Sure.

2 BY MR. ANWAR:

3 Q. Were -- was anyone else in attendance?

4 A. Yes, another attorney, Laura Baughman.

5 Q. Okay.

6 A. With -- was in and out on Zoom.

7 Q. To the best of your knowledge, during
8 yesterday's meeting, it was only yourself and
9 attorneys for the plaintiffs attending, correct?

10 A. That's correct.

11 Q. And then on Tuesday's meeting, who was
12 present for that?

13 A. I believe that was Mr. Dean and
14 Mr. Williams and Mr. Thompson.

15 Q. And --

16 A. I don't recall if anyone was on Zoom or
17 not. I don't believe because I did not get here
18 until three o'clock p.m.

19 Q. To the best of your knowledge, the only
20 folks in attendance on Tuesday's meeting were
21 yourself and lawyers for the plaintiffs?

22 A. That is correct.

23 Q. Prior to yesterday's meeting and
24 Tuesday's meeting, were there any other meetings
25 with the lawyers to prepare for today's deposition?

1 A. No, no meetings.

2 Q. Dr. Konikow mentioned during his
3 deposition a meeting that took place. I think he
4 said it was in preparation for his deposition, but
5 you were present as well; is that right?

6 A. That's -- yes, yes, yes, now that I
7 recall, that was when -- I believe, if I'm not
8 mistaken, that was in February.

9 Q. Okay.

10 A. And I think I was supposed to be -- be
11 deposed that Thursday. That got postponed.

12 Q. Sure.

13 A. But Dr. Konikow and I were in that
14 meeting, yes.

15 Q. Aside from yourself and Dr. Konikow,
16 who else attended that meeting?

17 A. Mr. Dean, Mr. Williams, and I believe
18 Mr. Thompson.

19 Q. Any -- anyone other than yourself,
20 Dr. Konikow, and the plaintiffs' lawyers attend
21 that meeting?

22 A. Not that I recall.

23 Q. Have you -- did you attend any other
24 meetings in preparation for today's deposition?

25 A. No, I did not.

1 Q. Did you speak with anyone else in
2 preparation for today's deposition?

3 A. No, I did not.

4 Q. Did you speak with anyone from ATSDR in
5 preparation for today's deposition?

6 A. No.

7 Q. Now, you -- we have the -- the most
8 recent 2020 article from Clement that you're adding
9 to your -- your reliance list --

10 A. Yes.

11 Q. -- and have provided a copy here today.
12 You mentioned a couple of other articles that you
13 reviewed.

14 A. Right.

15 Q. And I was just wondering, the Clement
16 article and the other articles that you reviewed,
17 why did you review those articles?

18 A. Well, the article that I coauthored on
19 the analytical contaminant transport analysis
20 system, the ACT system, I think it was published in
21 2004, we reviewed that because it had a number of
22 historical reconstruction cases. One was for
23 20 years, a dry cleaner in New Mexico, and one was
24 -- I want to say it's Otis Air Force Base, EDB
25 contamination, and we did 65 years, and we used an

1 analytical contaminant fate and transport model and
2 conducted two-stage Monte Carlo simulation. So I
3 just wanted to refresh my memory as to what we did
4 and some of the parameters that -- contaminant fate
5 and transport parameters that we used in that.

6 In the Clement article I reviewed --
7 and I reviewed that one in specific detail because
8 Dover Air Force Base is very similar to Tarawa
9 Terrace. About the same size, 2.4 square miles.
10 They used a -- was testing out the RT3D model,
11 which is the reactive transport. So they went from
12 PCE to TCE to DCE to vinyl chloride in their
13 analysis, and a number of their parameters are
14 right where the parameter values that we calibrated
15 for Tarawa Terrace, so I thought it was a good
16 comparison article.

17 Q. The Clement article, I'll look at it
18 during the break.

19 A. Okay.

20 Q. But just based on your memory, what --
21 what did they use that model for?

22 A. I think the -- the purpose was to --
23 was it to -- well, there was historical
24 contamination at the Air Force base and they wanted
25 to look at how it advanced in time, and they wanted

1 to test out the RT3D code that Dr. Clement had
2 developed originally when he was at Lawrence
3 Livermore National Labs, and it was hooked in to
4 MT3DMS, and so they were testing that out, and
5 that's what basically I recall. And then when I
6 started reading the details of it, it appeared to
7 me that it was a very, very good comparison article
8 to what we did at Tarawa Terrace.

9 Q. Just quickly -- and I'll mark this as
10 an exhibit, actually.

11 A. Okay.

12 (DFT. EXHIBIT 1, article from Journal
13 of Contaminant Hydrology entitled "Natural
14 Attenuation of Chlorinated Ethene Compounds: Model
15 Development and Field-scale Application at the
16 Dover Site", was marked for identification.)

17 BY MR. ANWAR:

18 Q. Let's go ahead and mark this as
19 Exhibit 1, but I'll -- I'll mark it and then I'll
20 hand it to you after I have a chance to read it.
21 The 2020 Clement article on the Dover Air Force
22 Base site, in the abstract it states, "the
23 numerical model developed in this study is a useful
24 engineering tool for integrating field-scale
25 natural attenuation data within a rational modeling

1 framework. The model results can be used for
2 quantifying the relative importance of various
3 simultaneously occurring natural attenuation
4 processes."

5 Does that sound consistent with your
6 recollection?

7 A. Yes.

8 MR. DEAN: Object to the form of the
9 question. I think you misspoke about the data, the
10 article. I think you said 2020. If you said 2000,
11 I apologize, but I thought I heard 2020.

12 BY MR. ANWAR:

13 Q. Okay. And I understood you, Doctor, or
14 Dr. Maslia, Mr. Maslia, to state that this article
15 was published in 2020, but I perhaps misunderstood.

16 A. Okay. Okay. It is a 2000 article.

17 Q. 2000 article. Okay. So I'll reask my
18 question. This 2000 article -- and it looks like
19 on the first page of the article it actually says
20 it was accepted in October -- into the -- this
21 journal in October of 1999, but let's -- let's call
22 it the 2000 Clement article.

23 The abstract states, "the numerical
24 model developed in this study is a useful
25 engineering tool for integrating field-scale

1 natural attenuation data within a rational modeling
2 framework. The model results can be used for
3 quantifying the relative importance of various
4 simultaneously occurring natural attenuation
5 processes."

6 Is that consistent with your
7 recollection of the article?

8 A. Yes.

9 Q. To the best of your knowledge, was the
10 model discussed in this 2000 Clement article
11 estimating contaminant concentrations for
12 determining exposure in specific individuals?

13 A. The article did not go into what the
14 end use was, okay? I took it to mean that this was
15 the first stage or initial stage in developing a
16 model. It did not discuss exposure. In other
17 words, it was not an exposure assessment article.

18 Q. And to the best of your knowledge, was
19 this -- the model discussed in the 2000 Clement
20 article used for estimating contaminant
21 concentrations for the purpose of -- purpose of
22 determining exposure in individuals?

23 A. It was used for determining contaminant
24 concentrations.

25 Q. But as you sit here today, you're not

1 aware of it being used for the purpose of
2 determining exposure in individuals?

3 MR. DEAN: Object to the form of the
4 question.

5 THE WITNESS: I don't know what the end
6 use was.

7 BY MR. ANWAR:

8 Q. With respect to any -- the other
9 articles that you mentioned, were any of those
10 models -- strike that.

11 With respect to the other articles that
12 you mentioned, were any of the models discussed in
13 those articles used for estimating contaminant
14 concentrations that were used to determine exposure
15 in individuals?

16 A. The -- or the sites that we summarized
17 or did an analysis for in our 2004 paper, the
18 analytical containment transport analysis system,
19 one of them was at a dry cleaner in New Mexico and
20 the other one was Otis Air Force Base, which was
21 multimedia, meaning groundwater surface water and
22 -- and volatilization, and I know USGS has done
23 some work at Otis Air Force Base. It's been an
24 ongoing thing and I believe there are some
25 components from just the general topic of Otis Air

1 Force Base that look at exposure. It goes -- there
2 are people living downstream from the river that
3 goes through the Air Force base. I don't know the
4 details of the subsequent analysis of -- on -- on
5 that. I believe ATSDR did use the New Mexico site,
6 I think it's North Avenue Railroad site, if I
7 recall correctly, and I think they did a health
8 assessment there, okay, but I don't know the
9 specifics.

10 Q. Those other articles, are those
11 included on your -- either in your report or on the
12 reliance list?

13 A. Yes, the -- the 2004 is already on my
14 reliance list, 2004 by Maslia and Aral.

15 Q. And that's the one -- 2004 is focused
16 on Otis Air Force Base?

17 A. And -- and the New Mexico site.

18 Q. Okay. So it's just one article from
19 2004?

20 A. Yes.

21 Q. Besides that article and this 2000
22 Clement article, it sounded like you reviewed a
23 couple of other articles, perhaps related to
24 uncertainty analysis.

25 A. Right.

1 Q. Did any of those involve using
2 groundwater modeling to estimate contaminant
3 concentrations for the purposes of determining
4 exposure in individuals?

5 MR. DEAN: Object to the form.

6 THE WITNESS: Again, most of the
7 articles that I reviewed did not state the end
8 purpose of the -- they said the purpose of the
9 modeling to reconstruct or predict groundwater
10 contaminant concentrations using techniques,
11 different techniques, and also one of the articles
12 went into -- I think it was one of the earlier
13 applications of uncertainty analysis using Monte
14 Carlo simulation.

15 BY MR. ANWAR:

16 Q. So as you sit here today, you're not
17 aware of those other articles using models to
18 estimate contaminant concentrations for the purpose
19 of determining exposure in individuals, correct?

20 MR. DEAN: Object to the form.

21 THE WITNESS: Again, not having been
22 directly involved with the analysis, it's -- I
23 really can't answer what the results were used for.

24 BY MR. ANWAR:

25 Q. Okay.

1 A. The articles describe the process of
2 developing and/or calibrating models.

3 MR. DEAN: Object to the form. And
4 also add that if you're going to ask him about what
5 certain conclusions are in certain reports, that
6 the witness is entitled to see those reports, have
7 an opportunity to review them in detail, and then
8 properly respond.

9 MR. ANWAR: I'm going to mark the 2000
10 Clement article as Exhibit 1.

11 BY MR. ANWAR:

12 Q. Now, earlier we talked about the other
13 experts in the case and you having listened to
14 their depositions and read the deposition
15 transcripts, correct?

16 A. Right, yes, to -- some more detail than
17 others.

18 Q. Sure. One of those experts is doctor
19 -- professor -- or Dr. Mustafa Aral, correct?

20 A. Yes.

21 Q. Who is -- remind me, who is Mustafa
22 Aral?

23 A. Well, he was a professor at the Georgia
24 Institute of Technology. He was also director of
25 the multimedia environmental simulations laboratory

1 within the School of Civil and Environmental
2 Engineering. And he had or he was the principal
3 investigator on a cooperative agreement between
4 ATSDR and Georgia Tech.

5 Q. And the cooperative agreement between
6 ATSDR and Georgia Tech, was that in relation to the
7 Camp Lejeune water modeling?

8 A. Not specifically. That was a
9 multiyear-type agreement and it was for any site.
10 For example, the couple of sites that I mentioned
11 in the journal article, ACTS article, we did
12 cooperatively.

13 Q. Understood. So -- but it did include
14 the Camp Lejeune water modeling, correct?

15 A. Yes, it did.

16 Q. And if I understand your testimony
17 before correctly, Dr. Aral was a professor that you
18 had at Georgia Tech, correct?

19 A. Yes, yes, he was my -- my master's
20 thesis dissertation chair of that -- that
21 committee.

22 Q. Okay. And you know him personally,
23 correct?

24 A. I know him professionally. I don't
25 socialize with -- with -- with him, but I've known

1 him throughout the years professionally.

2 Q. Understood. What is your opinion of
3 Dr. Aral?

4 A. He's very qualified. I view him as a
5 mentor.

6 Q. Okay.

7 A. And can take his problems and analyze
8 them from a practical standpoint and also address
9 them through computational methods.

10 Q. Now, you also listened to the
11 depositions of Jeffrey Davis and Norman Jones,
12 correct?

13 A. Correct.

14 Q. Who is Jeffrey Davis?

15 A. I only -- I've never met him in person.
16 I met him, I assume, through Zoom and he's -- to my
17 understanding, he's a consulting engineer and
18 modeler.

19 Q. You mentioned you have spoken with
20 Mr. Davis on Zoom; is that right?

21 A. In a meeting, yes, in meetings.

22 Q. Was that during the course of preparing
23 expert reports in the case?

24 A. I believe he and Dr. Jones had some
25 questions about the Tarawa Terrace model input

1 files, and so I think that's where we had
2 discussions over Zoom.

3 Q. And it was in the context of the -- the
4 litigation, correct?

5 A. Yes.

6 Q. Had you met either Jeffrey Davis or
7 Norman Jones prior to being retained by plaintiffs
8 as an expert?

9 A. I have met Dr. Jones previously.

10 Q. Okay. You had not met Mr. Davis prior
11 to working -- or that call with him in the context
12 of the litigation, correct?

13 A. That is correct.

14 Q. Had you worked with Mr. Davis prior to
15 that Zoom meeting with him?

16 A. No, I have not.

17 Q. And it sounds like you don't know him
18 personally or socially, correct?

19 A. That is correct.

20 Q. Now, you mentioned having met Dr. Jones
21 in the past?

22 A. Right.

23 Q. When have you met Dr. Jones in the
24 past?

25 A. I served with Dr. Jones on a review of

1 a National Science Foundation grant for the
2 University of Alabama. And so he was the chair of
3 the panel. And I think every year, every other
4 year, they have to have a review status report like
5 that, so that's -- that's where I met him in
6 person.

7 Q. Around what time frame would that
8 meeting have taken place?

9 A. 2021, 2022, someplace around there.

10 Q. Have you met him on any other
11 occasions?

12 A. Not in person, but I do know of him.

13 Q. How do you know of him?

14 A. Early on or as part of the Tarawa
15 Terrace analyses we found out that the -- I believe
16 it was the U.S. Army Corps of Engineers or U.S.
17 Army Corps of -- Hydrologic Center were developing
18 a software platform called GMS. And while they
19 were beta testing it, since we were a federal --
20 sister federal agency, they wanted people to test
21 it out. So they provided us with a license, and I
22 believe Dr. Jones was one of the original
23 developers of the GMS software and platform.

24 Q. Do you remember around what time frame
25 that would have been developed?

1 A. I don't know the start of GMS, but
2 there's probably some letters in my files or
3 e-mails. I'm going to say 2005, '6, somewhere --
4 maybe 2004, right when we were modeling or --
5 modeling Tarawa Terrace.

6 Q. Did Dr. Jones directly work on the
7 model -- ATSDR's Camp Lejeune model for Tarawa
8 Terrace?

9 A. No.

10 Q. Okay. You just had the conversation
11 with him in the context of the GMS software?

12 A. No, I've never had --

13 Q. Oh, you didn't. Okay.

14 A. It was just his -- his name as the
15 developer --

16 Q. Understood. Understood.

17 A. -- when we were provided the executable
18 code by -- I think it was U.S. Army Corps of
19 Engineers Hydrologic Engineering Center, and so I
20 just saw it -- saw it through there, okay?

21 Q. Outside of the work with the University
22 of Alabama and then the Zoom meeting that you
23 described for the purpose of this litigation, have
24 you worked with Dr. Jones in any other context?

25 A. No.

1 Q. Do you have any opinion about either
2 Mr. Davis or Dr. Jones?

3 A. Both very well qualified. Very good
4 analysts and they know their way around the GMS
5 modeling platform. And I believe Dr. Jones is the
6 chair of the Brigham Young University School of
7 Civil and Environmental Engineering.

8 Q. What about David Sabatini, who is
9 Dr. Sabatini?

10 A. I understand he's a professor -- and I
11 forget the university, whether it's Texas or
12 Oklahoma. Reading his report, he is -- appeared to
13 me to be an expert in volatilization issues, and I,
14 again, only met him over Zoom.

15 Q. And that was in the context of this
16 litigation, correct?

17 A. Yes.

18 Q. Had you met him prior to the Zoom
19 meeting in this litigation?

20 A. No, I have not.

21 Q. Do you have any opinion about Dr. -- or
22 David Sabatini?

23 A. The same as the others, very competent
24 and understands volatilization issues. Was able to
25 assess them both from a scientific engineering

1 standpoint as well as present them to a layperson
2 who is not as technically knowledgeable.

3 Q. Thank you.

4 A. Can I get a drink of water here?

5 Q. Sure.

6 (DFT. EXHIBIT 2, deposition of Morris
7 L. Maslia dated June 30, 2010 Bates-stamped
8 CLJA_Healtheffects-00000494487 through 0000049712,
9 was marked for identification.)

10 BY MR. ANWAR:

11 Q. I'm handing you what I'm marking as
12 Exhibit 2. Here you go. And I asked you these
13 questions last time around --

14 A. Okay.

15 Q. -- in September, but I just want to
16 confirm.

17 A. Okay. Can I take the rubber band off?

18 Q. Sure. Actually, that's all -- I
19 actually gave you all the copies.

20 A. Oh.

21 Q. Feel free to give one to Kevin.

22 A. Okay. Who else?

23 Q. And I can take that one. Exhibit 2 is
24 a transcript from a deposition you gave in 2010 in
25 Laura Jones versus the United States, correct?

1 A. That is correct.

2 Q. Okay. And at that time you were
3 employed still with the ATSDR, correct?

4 A. That is correct.

5 Q. And you were, I think, in the midst of
6 working on the Hadnot Point/Holcomb Boulevard
7 model, correct?

8 A. That is correct.

9 Q. And the Laura Jones versus United
10 States case, that was a prior Camp Lejeune case,
11 correct?

12 MR. DEAN: Object to the form of the
13 question.

14 THE WITNESS: It was never explained to
15 me, either by the Office of the General Counsel or
16 DOJ or the plaintiffs' attorney, what -- what
17 exactly the case was for.

18 BY MR. ANWAR:

19 Q. The focus of your deposition, was it on
20 your work on the ATSDR water modeling for Camp
21 Lejeune?

22 MR. DEAN: Object to the form of the
23 question.

24 THE WITNESS: It was for Tarawa
25 Terrace, my understanding was.

1 BY MR. ANWAR:

2 Q. Okay. So the focus of the deposition
3 was the Tarawa Terrace model, correct?

4 MR. DEAN: Object to the form of the
5 question.

6 THE WITNESS: That's my --

7 MR. DEAN: Give me time to -- you can
8 answer.

9 THE WITNESS: Okay. That -- that was
10 my understanding.

11 BY MR. ANWAR:

12 Q. Okay. And you testified under oath
13 during that deposition truthfully, correct?

14 A. Yes, I did.

15 Q. And you had an opportunity to -- to
16 review the transcript and make corrections on an
17 errata sheet, correct?

18 A. That is correct.

19 Q. And I believe the last page of the
20 transcript is your signed errata sheet. You can
21 take a look.

22 A. Yes, yes, it is.

23 Q. Okay. And as you sit here today, do
24 you stand by your prior deposition testimony?

25 A. I will say I generally do. If there's

1 a specific item in -- in here that there's a
2 question about, I would have to see what that
3 technical issue is and then I could specifically
4 tell you.

5 Q. Okay.

6 A. Okay.

7 Q. As you sit here today, you don't have
8 any changes that you want to make to that
9 testimony?

10 MR. DEAN: Object to the -- object to
11 the form.

12 BY MR. ANWAR:

13 Q. You didn't come with changes, correct?

14 A. No, I did not come with changes.

15 Q. Okay. So I am handing you now what I'm
16 marking as Exhibit 3.

17 (DFT. EXHIBIT 3, deposition of Morris
18 Maslia dated September 26, 2024, was marked for
19 identification.)

20 BY MR. ANWAR:

21 Q. Here you go.

22 MR. ANWAR: Kevin, here you go, if you
23 would like a copy.

24 MR. DEAN: All right. Thanks.

25 BY MR. ANWAR:

1 Q. I'll represent to you this is a copy of
2 the transcript from your September 26th, 2024
3 deposition in this case. Would you agree with
4 that?

5 A. It appears to be, yes.

6 Q. And this is deposition you gave in this
7 case in your sort of capacity as a fact witness,
8 correct?

9 A. That is my understanding, yes.

10 Q. And this deposition took place after
11 you had been retained by the plaintiffs, but before
12 you had disclosed your expert report in the case,
13 correct?

14 A. Yes, that is correct.

15 Q. And you gave that deposition testimony
16 under the oath to tell the truth and testify
17 truthfully, correct?

18 A. That is correct.

19 Q. And you had an opportunity to review
20 and make corrections on an errata sheet for that
21 deposition transcript as well, correct?

22 A. Yes, I did.

23 Q. And I say that deposition transcript.
24 I mean the September 2024 transcript; is that
25 correct?

1 A. Yes.

2 Q. Okay.

3 (DFT. EXHIBIT 4, Acknowledgement of
4 deponent and errata sheets, was marked for
5 identification.)

6 BY MR. ANWAR:

7 Q. I'm handing you what I'm marking as
8 Exhibit 4, which I'll represent to you is a copy of
9 your signed errata sheet for the September 2024
10 deposition transcript. Would you agree with that?

11 A. Yes, it is.

12 Q. Aside from the changes on that errata
13 sheet, do you have any changes to your prior
14 deposition testimony?

15 A. Not that I recall at this time.

16 Q. Okay. Nothing that you came with to
17 the deposition, correct?

18 A. Excuse me? I don't understand the
19 question.

20 Q. You didn't come prepared to make
21 changes or offer changes to your past deposition
22 testimony as you sit here right now, correct?

23 A. No, I do not.

24 Q. Okay. I am going to hand you now what
25 I'm marking as Exhibit 5.

1 (DFT. EXHIBIT 5, Expert Report of
2 Morris L. Maslia, P.E., D.WRE, DEE, Fellow EWRI,
3 was marked for identification.)

4 BY MR. ANWAR:

5 Q. Here you go.

6 MR. ANWAR: Here's a copy for you.

7 BY MR. ANWAR:

8 Q. Mr. Maslia, this is a copy of your
9 expert report in this case dated October 25th,
10 2024, correct?

11 A. That is -- I'm looking for the date on
12 here. There's no date on this copy.

13 Q. I think it's at the bottom there in the
14 middle.

15 A. Oh, there it is, yes. Okay. That is
16 correct.

17 Q. And to the -- you had an opportunity to
18 sort of look through that. True and accurate copy,
19 to the best of your review?

20 A. The copy is correct.

21 Q. And aside from the articles that you --
22 we discussed this morning already, is the
23 materials-considered list on there complete and
24 accurate?

25 A. Yes, as far as I know.

1 Q. Is there anything on -- in that report
2 that you believe needs to be added that's not
3 reflected in the report?

4 A. No.

5 Q. I am handing you now what I'm marking
6 as Exhibit 6.

7 (DFT. EXHIBIT 6, Rebuttal Response to
8 Reports of Alexandros Spiliotopoulos, Remy, J.-C.
9 Hennet & Jay Brigham, was marked for
10 identification.)

11 BY MR. ANWAR:

12 Q. Mr. Maslia, is Exhibit 6 a true and
13 accurate copy of your rebuttal expert report
14 submitted in this case?

15 A. Yes, it is.

16 Q. And it's dated January 14, 2024?

17 A. Yes, it is.

18 Q. And aside from the articles that you
19 mentioned this morning, is there anything missing
20 from the materials-considered list or the
21 references provided with this report?

22 A. No.

23 Q. And in this report, as the title
24 indicates, is in response to the reports of DOJ
25 experts Dr. Spiliotopoulos, Dr. Hennet and Brigham?

1 A. That is correct.

2 Q. Do you know Dr. Spiliotopoulos, Hennet
3 or Brigham?

4 A. I do not know any of them and have
5 never met any of them.

6 Q. Do you know of any of them?

7 A. I know of Dr. Spiliotopoulos. I
8 believe his name appeared in -- as an observer at
9 at least one of the ATSDR expert panel meetings.

10 Q. Okay.

11 A. But I could not tell you exactly which
12 one, okay?

13 Q. Have you ever met Dr. Spiliotopoulos?

14 A. No.

15 Q. Have you -- so fair to assume if you
16 haven't met him, you've never worked with him,
17 correct?

18 A. That is correct.

19 Q. And same with Dr. Hennet?

20 A. That is correct.

21 Q. And I assume same with Dr. Brigham?

22 A. That is correct.

23 Q. Do you have any opinion about
24 Dr. Spiliotopoulos, Hennet or Brigham?

25 A. Not other than they are the DOJ's

1 expert witnesses.

2 Q. Okay. In your -- either your primary
3 expert report or the rebuttal report, is there
4 anything that you believe is incorrect?

5 A. I would -- in my expert report there
6 was -- and there was discussion during my
7 deposition about model bias and geometric biases.
8 And I believe that we -- or I went back and --
9 because there were a number of duplicate samples.
10 And because our model was only on a monthly time
11 frame, it really is not correct to try to match
12 daily or even weekly samples within monthly model
13 output.

14 So if you take the average within the
15 month of the actual sample data, you get a much
16 closer geometric bias to 1 -- 1.5. So we
17 overstated both in the ATSDR report, and I'm
18 talking about Tarawa Terrace, as well as my expert
19 report, which came from -- had that overstated or
20 provided a higher geometric bias both for the
21 supply wells and the water treatment plant than I
22 believe should actually be there.

23 Q. Is that currently reflected in your
24 expert report?

25 A. No, it's not.

1 Q. And it's not reflected in the ATSDR
2 reports, correct?

3 A. No, no.

4 Q. When --

5 A. I'm sorry.

6 Q. No, go ahead.

7 A. My expert report reflects or copies
8 exactly the tables out of the ATSDR reports
9 specifically for Tarawa Terrace with that.

10 Q. When did you do this analysis about the
11 geometric bias? And this is specifically for
12 Tarawa Terrace?

13 A. Yes, I would say within -- as I was
14 preparing my rebuttal report to the DOJ experts and
15 within last month sometime, I started just reading
16 more about nondetection of sample data and multiple
17 samples within a month, which we had at Tarawa
18 Terrace, Hadnot Point, and then realizing that our
19 model results -- we only had one result per month
20 because they were monthly time steps. So the
21 implication was that the model could reproduce
22 those daily or multiple monthly sampling, and they
23 -- it really can't if you only have a one-month
24 time step.

25 Q. Does it follow, then, the -- the model

1 certainly -- because the model produced monthly
2 estimated concentrations, correct?

3 A. That is correct.

4 Q. And the model was not intended to
5 produce daily estimated concentrations, correct?

6 A. Not the groundwater flow and
7 contaminant transport. It was produced -- we had
8 monthly time steps, so that would be 31, 30, 28 or
9 29 days, depending on which month it was, and our
10 assumption was that represented the last day of
11 each month, like January 31st, February 28th, and
12 so on, but that it was equally likely to occur on
13 any day of the month.

14 Q. So is it your opinion because you used
15 daily samples, but the model was producing monthly
16 simulated contaminant concentration estimates, that
17 you overestimated the geometric bias?

18 A. Yes.

19 MR. DEAN: Object to the form.

20 THE WITNESS: We computed a geometric
21 bias that was higher than if you had a one-to-one
22 correspondence, one -- one sample and one model
23 result for each month.

24 BY MR. ANWAR:

25 Q. Have you actually done the calculations

1 on that?

2 A. Yes, I have.

3 Q. I guess, based on the opinion that
4 you're offering now, what is -- what is, in your
5 opinion, the geometric bias for the Tarawa Terrace
6 model?

7 A. For the supply wells, I believe it
8 comes down to somewhere below 1.5 and recalling a
9 value of 1.0 would be an exact match, okay? And at
10 the water treatment plant, I believe it comes down
11 to almost 1.0.

12 Q. Do you -- when you said you did the
13 calculations, is that reflected in writing
14 anywhere?

15 A. I've got notes, but not with me.

16 Q. Okay. If we requested those notes to
17 be produced, would you be agreeable?

18 MR. DEAN: Object -- object to the form
19 of the question. I'll let you finish. I'm not
20 sure if you were finished.

21 BY MR. ANWAR:

22 Q. Well, we will request the notes from
23 your lawyer and the lawyers will work it out, but
24 if your lawyers ask you for the notes, would you be
25 agreeable to giving it to them?

1 A. Yes.

2 MR. DEAN: Object to the form of the
3 question.

4 BY MR. ANWAR:

5 Q. And outside of those notes, this
6 opinion that you're offering now, it's not
7 reflected in either your current expert report or
8 rebuttal report or the ATSDR reports themselves?

9 A. That is correct.

10 Q. And sort of my general high-level
11 understanding of sort of the thrust of your main
12 expert report at least is, is that the -- the ATSDR
13 models for Tarawa Terrace and the model for Hadnot
14 Point and Holcomb Boulevard are sufficiently
15 reliable and accurate to -- in estimating
16 contaminant levels for purposes of using them to
17 make exposure determinations in this case; is that
18 right?

19 A. I would say that the models produce
20 reliable results on a monthly basis, the
21 groundwater flow and contaminant transport models
22 for both Tarawa Terrace and Hadnot Point, and that
23 we met one of the objectives that we were required
24 to meet by the study epidemiologists of providing
25 mean monthly concentrations.

1 Q. You're serving as an expert in this
2 case, correct?

3 A. That is correct.

4 Q. On behalf of the plaintiffs, correct?

5 A. That is correct.

6 Q. And do you understand that the
7 plaintiffs are offering the model for purposes of
8 estimating exposure in individual plaintiffs in the
9 litigation?

10 MR. DEAN: Object to the form of the
11 question.

12 THE WITNESS: When we did the model, I
13 was not aware of the end use of it. I was
14 concerned with and what I have presented to the
15 plaintiffs is that it's reliable to provide monthly
16 mean concentrations. I'm not involved in, nor have
17 I ever been involved in, any use post-modeling
18 results.

19 BY MR. ANWAR:

20 Q. You understand the -- and if not, I'm
21 telling you now, the plaintiffs' lawyers are
22 offering the model as a way to estimate exposure --
23 estimated exposures in individual plaintiffs. Do
24 you understand that?

25 MR. DEAN: Object to the form of the

1 question.

2 THE WITNESS: I understand what you
3 have just said, yes.

4 BY MR. ANWAR:

5 Q. Okay. And do you believe the model is
6 sufficiently reliable and accurate for that
7 purpose?

8 A. The model is sufficiently reliable and
9 accurate for the monthly mean concentrations in
10 groundwater and in drinking water. I don't know
11 what analyses they are conducting with those --
12 with those values, nor I have ever known, even when
13 I was at ATSDR, what the epidemiologists or how
14 they were planning on -- on using them other than
15 in a general framework. But the epidemiologists at
16 ATSDR believe the model results were reliable and
17 accurate for their use.

18 Q. Sort of at a high level I understood
19 the purpose of your report as -- to be supporting
20 the use of the model in the litigation. Would you
21 agree with that?

22 MR. DEAN: Object to the form of the
23 question.

24 THE WITNESS: Could you clarify which
25 report you're speaking of?

1 BY MR. ANWAR:

2 Q. Sure. I understood the purpose of your
3 expert report that you submitted as a litigation
4 expert in the case for which you're consulting with
5 the plaintiffs on as advocating for or supporting
6 the use of ATSDR's Tarawa Terrace and Hadnot
7 Point/Holcomb Boulevard models in the litigation.

8 MR. DEAN: I'm sorry.

9 BY MR. ANWAR:

10 Q. Do I understand -- am I -- would you
11 agree with that?

12 MR. DEAN: Object to the form of the
13 question. You're asking him if he understands the
14 same thing you understand? That's...

15 THE WITNESS: My understanding was --

16 MR. DEAN: For the record, I do not
17 know, nor has Mr. Anwar provided sufficient
18 information about what his understanding is to get
19 in his head in order to be able to have anyone
20 properly be able to respond to that question, so I
21 object to the form.

22 MR. ANWAR: And I appreciate your
23 objections, Kevin. I would appreciate if you also
24 limit your objections to form within the rules and
25 limit your speaking objections. Mr. Maslia is the

1 one here to testify. This isn't your deposition.

2 MR. DEAN: You're familiar with the
3 rules of the road and the rules of depositions, and
4 if you follow those rules, then I will certainly
5 follow them as well.

6 MR. ANWAR: And I am sort of raising
7 this now because if this continues to be a problem,
8 we intend to take that to the Court, so...

9 BY MR. ANWAR:

10 Q. Mr. Maslia, I will ask you the question
11 again. So you submitted an expert report in this
12 case?

13 A. Yes.

14 Q. And you submitted an expert report as a
15 paid litigation expert, correct?

16 A. That is correct.

17 Q. And you did so on behalf of the
18 plaintiffs, correct?

19 A. That is correct.

20 Q. Did you do so with the understanding
21 that the plaintiffs are offering the model or the
22 -- and when I say "the model", I mean ATSDR's
23 Tarawa Terrace model and ATSDR's Hadnot
24 Point/Holcomb Boulevard model -- for use in the
25 litigation?

1 MR. DEAN: Object to the form.

2 THE WITNESS: I did so as the expert
3 and the person who oversaw the development of the
4 ATSDR models to any technical or scientific
5 questions pertaining specifically to the model,
6 model assumptions, model results that the
7 plaintiffs' attorneys may have.

8 BY MR. ANWAR:

9 Q. Okay. I just want to make sure I'm
10 crystal clear on this because as of now the Court
11 intends to hold a hearing on -- or the -- there's
12 discussion of a potential hearing being held on
13 issues related to water contamination in the case.
14 And I imagine if the Court does hold a hearing,
15 you'll be called to testify. And if you're asked
16 by a lawyer or one of the judges that -- whether or
17 not the Court should use the model for making
18 exposure determinations for individual plaintiffs
19 in the case, what would your answer be?

20 MR. DEAN: Object to the form of the
21 question.

22 THE WITNESS: My response would be,
23 from my standpoint, my professional and expert
24 standpoint, that the model results are reliable
25 based on our assessment of model calibration, model

1 results, and that the -- as long as the models are
2 sufficiently calibrated, in my mind, anyone can use
3 them for whatever purpose they want to use them
4 for. In other words, we did not calibrate the
5 models with the end result of exposure assessment.
6 Again, we were, at ATSDR, blinded to anything with
7 the epidemiology in terms of cases, controls,
8 people, anything like that, other than the five
9 objectives that I believe I listed in my expert
10 report as to what the epidemiologists requested us
11 to meet.

12 BY MR. ANWAR:

13 Q. Okay. Now, Appendix A, which is page
14 120 of your initial expert report.

15 A. 2020. Yes, I'm there.

16 Q. Is that a true and accurate copy of
17 your curriculum vitae?

18 A. Yes, it is.

19 Q. To the best of your knowledge, as you
20 sit here today, is it complete?

21 A. Yes, it is.

22 Q. And there's not anything that needs to
23 be updated as far as you're aware on that
24 curriculum --

25 A. Not that I'm aware of.

1 MR. DEAN: So there's someone who has
2 just joined with an area code 202 number. You're
3 not muted. Would you mind muting your phone,
4 please. Thank you.

5 BY MR. ANWAR:

6 Q. And on page 17 of your report it states
7 that "I'm being compensated an hourly rate of 400
8 for my work for preparing this report. My rate for
9 depositions and trial testimony is 2,000 per day."
10 Did I read that correctly?

11 A. Yes, you read that correctly.

12 Q. And is that what you're being
13 compensated in the case?

14 A. Yes, as it states right here.

15 Q. I'm handing you what is being marked as
16 Exhibit 7.

17 (DFT. EXHIBIT 7, M.L. Maslia Consulting
18 Engineer invoices Bates-stamped
19 CL_PLG-Expert_Maslia_0000000609 through 0000000680,
20 was marked for identification.)

21 BY MR. ANWAR:

22 Q. These are invoices that were produced
23 to us in response to a document, subpoena,
24 accompanying your -- your deposition notice.

25 A. Okay.

1 Q. Are these the invoices for the -- for
2 your expert work performed on behalf of the
3 plaintiffs in the case?

4 A. I haven't gone through all of them, but
5 they appear to be with my signature and the
6 billable hours and expenses that I submitted, yes.

7 Q. Okay. Do you have an estimate on how
8 much you've billed to date in the case?

9 A. No, I just submit it on a monthly
10 basis.

11 Q. Sure.

12 A. And you would have to ask the --
13 whoever the accountant is for the plaintiffs or my
14 CPA who is filing my taxes.

15 Q. Well, so I went through the invoices.

16 A. Right.

17 Q. According to my calculation and
18 let's -- let's call this rough, it looks like
19 you've billed a little over 1100 hours in the
20 amount of about \$346,000, just under \$347,000, for
21 your work in this case and that's for professional
22 services. Does that sound about right to you?

23 MR. DEAN: Object to the form.

24 THE WITNESS: It sounds high to me,
25 but, again, you'll have to add these up. If you're

1 basing them on -- on these, that's all --

2 Q. Okay.

3 A. It does sound high. The 300 number
4 sounds high.

5 Q. Okay. But if it's -- if that's what
6 the invoices add up to, you wouldn't dispute it?

7 A. No, I would not.

8 Q. And I noticed your invoices were
9 separated out for professional services and then
10 you had travel and related expenses, correct?

11 A. That is correct.

12 Q. Okay. And so the hours and the numbers
13 I read to you just now were what I calculated for
14 professional services. For travel and related
15 expenses, again, roughly I calculated 82.5 hours in
16 the amount of about \$16,000. Does that sound about
17 right to you?

18 A. It would be hard for me to answer that
19 right at this instant of time without going through
20 them and adding them up.

21 Q. Okay. If that's what they add up to in
22 the invoices, do you have any reason to dispute
23 that?

24 A. No, I do not.

25 Q. We've been going for about an hour.

1 Would you like to take a break or --

2 A. Sure. That would be good.

3 Q. Okay. Let's do that.

4 THE VIDEOGRAPHER: Okay. We're going
5 off record. The time is 10:14 a.m.

6 (A recess transpired.)

7 THE VIDEOGRAPHER: Okay. We're going
8 back on the record. The time is 10:25 a.m.

9 BY MR. ANWAR:

10 Q. We are back on the record from a short
11 break, Mr. Maslia. Are you okay to continue?

12 A. Yes, I am.

13 Q. Did you speak with your lawyers during
14 the break?

15 A. No, I did not.

16 Q. Okay.

17 A. There is one thing I would like to
18 clarify.

19 Q. Sure.

20 A. If I could do that. When we were
21 speaking about the improved and reanalysis of the
22 geometric biases, I got the original thought
23 reading Dr. Konikow's expert report where he had
24 mentioned about duplicate values in his report.

25 Q. Okay.

1 A. So I just wanted to give credit for the
2 initial thought about that.

3 Q. No, I appreciate that. You actually
4 anticipated my question. I was going to ask you
5 sort of as a follow-up when you decided to do that
6 analysis and it sounds like it was in the last
7 month or two; is that right?

8 A. That is correct.

9 Q. Okay. And it was in the context of
10 reading Dr. Konikow's report?

11 A. Yes.

12 Q. Okay. Would that have been after he
13 had disclosed his report?

14 A. Yes, yes, it was the -- I mean, what
15 was submitted to DOJ.

16 Q. Okay. And was there any particular
17 reason you decided to do the analysis or it was
18 just the thought popped up in reading his report?

19 A. Well, he mentioned that -- specifically
20 I believe it was in reference to well TT26 at
21 Tarawa Terrace where there were, like, five samples
22 within a short time period, like within a day or
23 week.

24 Q. Yeah.

25 A. And that the models could not really

1 reproduce that, okay, on a monthly basis. And so
2 that's when I looked at our tables that we had
3 published in the Tarawa Terrace Chapter A report
4 where we computed the model biases and the
5 geometric biases, and I went back and took that
6 suggestion and did the analysis.

7 Q. Okay. And you indicated you have some
8 notes about that, right?

9 A. That is correct.

10 Q. Okay.

11 MR. ANWAR: We will -- we will formally
12 request those notes be produced. We will just
13 formally on the record request that those notes be
14 produced and reserve the right to reopen the
15 deposition depending on what's in the notes.

16 MR. DEAN: That's right. And we
17 reserve all of our objections and -- but we will
18 take a look at it and provide a response back to
19 you.

20 MR. ANWAR: Okay. Sounds good.
21 Thanks, Kevin.

22 MR. DEAN: I don't have what he's
23 referring to here either, so...

24 MR. ANWAR: Okay. Understood.

25 BY MR. ANWAR:

1 Q. And then I wanted to ask you,
2 Mr. Maslia, when we were talking about expert
3 reports that you had reviewed, did you review
4 Dr. Longley's report as well?

5 A. No, I did not.

6 Q. Okay. Did you review it at any point?

7 A. I don't know who Dr. Longley is.

8 Q. Okay. I wanted to ask you a few
9 questions about the invoices. There were a couple
10 of references to discussions with -- with Robert
11 Faye. And it looks like you spoke with Robert Faye
12 in August of 2024. I'll call him Bob Faye.
13 Everyone calls him Bob Faye, it appears. And one
14 of the notes is -- provide Robert Faye, Bob Faye,
15 with verbiage on the use of probabilistic analysis
16 for Tarawa Terrace models, compose table listing,
17 ATSDR data discovery activities, and then review so
18 -- review 2005 expert report panel. And I can
19 direct you to where in the invoices that is if you
20 would like to take a look at it, but --

21 A. Yeah, if you could, please.

22 Q. Sure. It's the page ending 626.

23 A. 626. Okay. Ah, okay. Sure. What
24 date in particular?

25 Q. It's August 24.

1 A. Okay.

2 Q. Why did you speak to Robert Faye there?
3 What was that about?

4 A. Well, Bob Faye and I have known each
5 other professionally probably for 40 years.

6 Q. Four or 40?

7 A. 40. 40. 40 years, more or less. And
8 he was the person responsible for developing the
9 Tarawa Terrace groundwater flow and contaminant
10 fate and transport models as well as analyzing all
11 the hydrogeologic data. And so I had found out,
12 maybe through Bob, that he had been retained by the
13 plaintiffs' attorneys and I think there was a
14 question on -- on his part as to how to properly --
15 or how to word something containing probabilistic
16 analyses, which is what I did at ATSDR. Not only
17 did that, but I was familiar with -- with that on
18 numerous occasions of doing that, and so I think
19 that's what the discussion was about.

20 Q. Do you know when Bob Faye was retained?

21 A. I don't know the date.

22 Q. But as of this day, August 24th, 2024,
23 you spoke with him and he was retained; is that
24 right?

25 A. That is my understanding.

1 Q. Okay. And on that same page there is
2 an entry phone call with R. Faye about review of
3 ABC One Cleaners site data 2007 to 2012. Do you
4 remember what that conversation was about?

5 A. I think the question came up in some of
6 the production that DOJ provided to the -- the
7 plaintiffs about what documents we may have had at
8 ATSDR and what documents either the Department of
9 Navy provided us --

10 Q. Sure.

11 A. -- in conducting the Tarawa Terrace
12 reports. And so that ABC Weston 2007 report came
13 up.

14 Q. Okay. And then if you turn the page to
15 the page ending 640.

16 A. Okay.

17 Q. There are a couple of entries for
18 December 28th and 29.

19 A. Right.

20 Q. The 29th entry is, review R. Faye
21 rebuttal report, call with R. Faye. Do you recall
22 that conversation?

23 A. On the 28th?

24 Q. 29th.

25 A. 29th. I'm sorry. I don't specifically

1 recall that -- that phone call. I mean, I don't
2 know what exactly I was reviewing in his report.
3 He may have asked me my opinion of something he was
4 writing and being that he was retained and I was
5 retained, I probably provided an opinion.

6 Q. Okay. We have not received a rebuttal
7 report from Bob Faye. One has not been disclosed.
8 I'm just wondering if you knew why that was?

9 MR. DEAN: Object to the form of the
10 question. It's confidential attorney work product
11 and I would instruct the witness not to answer the
12 question.

13 BY MR. ANWAR:

14 Q. Do you know if Bob Faye intends to
15 testify in this case?

16 A. I've -- I'm not involved in that part
17 of being retained as to who does and does not
18 testify, so I do not know.

19 Q. Okay. Other than sort of what's
20 reflected on these invoices, have you spoken with
21 Bob Faye about any other aspect of your work on
22 this case?

23 A. Well, just in reviewing the original
24 ATSDR reports where he was the primary author,
25 making sure I understood what he was writing about

1 or what his intent was.

2 Q. Sure.

3 A. For example, the Chapter F, fate and
4 transport model, I wanted to clarify, you know,
5 technically clarify something.

6 Q. When would that have taken --
7 conversation taken place?

8 A. Last week sometime.

9 Q. I also noticed from some of the entries
10 on your invoices that you exchanged some e-mails
11 with Jerry Ensminger; is that right?

12 A. If you could -- can you point me to
13 exactly where they -- they are?

14 Q. I don't -- I don't -- I can look during
15 one of the breaks --

16 A. Okay. Okay.

17 Q. -- and point you directly, but do you
18 recall exchanging e-mails with Jerry Ensminger or
19 talking with him during the course of your work on
20 this case?

21 A. He has called me a couple of times.

22 Q. Okay.

23 MR. DEAN: I think you might have
24 marked some of that in the first depo, if I
25 remember correctly, just for what it's worth to

1 help him remember. I think you might have marked a
2 couple that were produced.

3 BY MR. ANWAR:

4 Q. When is the last time you spoke with
5 Mr. Ensminger?

6 A. Sometime this past month he called me.

7 Q. What was that conversation about?

8 A. He wanted to know my opinion of the
9 ATSDR models. He did mention geometric bias
10 specifically, but whether the models were, you
11 know, accurate, did they overpredict, underpredict.

12 Q. Do you know why he called you in the
13 last month about that, about whether the models
14 were accurate?

15 A. No, he never provides a reason why he
16 calls. He just calls me. I mean, in that sense.

17 Q. You know, just in reviewing the
18 documents in the case, it seems like -- and you
19 should correct me if I'm wrong -- throughout the
20 years Mr. Ensminger has had a number of
21 conversations with you and others on the ATSDR side
22 about work that was being performed related to the
23 models and the epi studies. Is that consistent
24 with your recollection?

25 A. Well, Mr. Ensminger was a member of the

1 Camp Lejeune camp.

2 Q. Yeah.

3 A. And he probably called or talked to me
4 in that capacity because when I was at ATSDR -- and
5 I don't know what the situation is now -- they
6 would have quarterly CAP meetings, okay, and it's
7 mostly when -- if I was going to present some
8 information or whatever, I called in his capacity
9 as the -- as a CAP member. That's what I recall.

10 Q. Okay. I was just wondering if you had
11 any insight on why he called you now. Because it
12 seems like he probably has a pretty good
13 understanding of the models just from the years of
14 working with you-all. If you have any insight on
15 why he decided to call in the last month.

16 MR. DEAN: Object to the form of the
17 question.

18 THE WITNESS: No, I do not know why --
19 why he would call me, because I had not heard from
20 him in a while. I mean...

21 BY MR. ANWAR:

22 Q. Sure. And did you-all specifically
23 discuss geometric bias during that call?

24 A. Not -- not that specific verbiage, but
25 the concept and what it means.

1 Q. Okay. Now --

2 A. Those were the values -- I need to
3 clarify. Those were the values relating
4 specifically to the report, not anything additional
5 that I had done.

6 Q. Understood. Have you had any other
7 conversations with Mr. Ensminger during the course
8 of your work in this case?

9 A. I believe there's one e-mail where he
10 wanted to know if I had an award certificate where
11 we were awarded the grand prize in research from
12 the American Academy of Environmental Engineers and
13 Science in 2015, and I believe I did provide him
14 with a couple of images.

15 Q. Sure. And if my understanding -- if my
16 recollection from your prior deposition is correct,
17 Mr. Ensminger is a Camp Lejeune activist, right?

18 MR. DEAN: Object to the form.

19 THE WITNESS: I assume there's
20 different definitions for activist. I have always
21 known him as a member of the CAP and a -- I'll just
22 leave it at that. That's where I first met him and
23 that's -- even when he calls today, I still think
24 of him in terms of the Camp Lejeune CAP.

25 BY MR. ANWAR:

1 Q. And are you aware that he's a plaintiff
2 in the lawsuit as well?

3 A. No, I'm not aware of anyone who's a --
4 who's in the lawsuit.

5 Q. Is Mr. Ensminger a water modeler?

6 A. No, he is not.

7 Q. Is he an epidemiologist?

8 A. No, he's not. Let me qualify that, to
9 my knowledge, I guess.

10 Q. Sure. I also noticed in the invoices
11 at some point during the course of your work as a
12 retained expert, you spoke with Chris Portier. Do
13 you recall that?

14 A. I don't ever recall speaking with
15 Dr. Portier once I was retained here.

16 Q. Okay.

17 A. I spoke to him -- or he spoke to me
18 when I was at ATSDR. That's the last -- last time,
19 actually, I recall speaking to Dr. Portier.

20 Q. Who is Chris Portier?

21 A. Dr. Portier is a former director of the
22 Agency for Toxic Substances and Disease Registry.
23 I'm not sure when he started. Maybe 2010, perhaps,
24 and retired, my understanding is, in 2013.

25 Q. Okay. And then I noticed on the

1 invoices there were some e-mails or conversations
2 that took place with Walter Grayman; is that right?

3 A. That is correct.

4 Q. First off, let me ask you, who is
5 Walter Grayman?

6 A. Walter Grayman I would consider a
7 mentor in water distribution system modeling and
8 probably one of the godfathers of water
9 distribution system modeling using computational
10 methods.

11 Q. And why did you speak with Walter
12 Grayman?

13 A. In my capacity here or -- I don't
14 understand --

15 Q. Sure.

16 A. -- the question.

17 Q. During the course of your retention --

18 A. Right.

19 Q. -- as a -- for the plaintiffs in the
20 litigation as an expert. I noticed his name on
21 some of the invoices. Why did you speak with him
22 during the course of the litigation?

23 A. My understanding is that he was also
24 retained as an expert witness.

25 Q. Okay.

1 A. But he is no longer that. But that was
2 my initial understanding. So he had some questions
3 about the water distribution system modeling
4 because he had assisted us in conducting field
5 studies and using the -- the model, and so that's
6 probably why I spoke with him, about that.

7 Q. Do you recall any other conversations
8 that you've had with Walter Grayman during the
9 course of the litigation?

10 A. No, no.

11 Q. I wanted to -- we talked -- some of
12 this is going to overlap with our discussion during
13 the last deposition. I'm trying --

14 A. Okay.

15 Q. -- my best not to duplicate too much.
16 We talked about, in your prior deposition, sort of
17 when you started working on the Camp Lejeune water
18 modeling at ATSDR and when it concluded. And I
19 noticed in Dr. Aral's report submitted in this
20 case, he makes a statement that over the 15-year
21 period from 2000 to 2015, I had my team members
22 work with essentially EDRP at ATSDR -- and, for the
23 record, the EDRP is exposure dose reconstruction
24 program. The statement is "from 2000 to 2015, I
25 and my team members worked with other team members

1 at EDRP at ATSDR to perform analysis of Tarawa
2 Terrace, Holcomb Boulevard, Hadnot Point studies
3 related to Camp Lejeune."

4 Does that time period, 2000 to 2015, is
5 that right in terms of the work for the water
6 modeling?

7 A. For Camp Lejeune?

8 Q. Correct.

9 A. No, that is not correct. We had a --
10 as I indicated previously, we had the cooperative
11 agreement that ran every five years, and Georgia
12 Tech was the cooperative agreement university
13 partner. And so on other sites, for example, I
14 mentioned the journal article that was published in
15 2004, so we would work on other sites. We did not
16 begin working in earnest until 2003 on Camp -- Camp
17 Lejeune, at which point, if they were still part of
18 the cooperative agreement, which they were, that's
19 when they would have started or we would have
20 started to have discussions about Camp Lejeune and
21 the approaches we should be taking and things of
22 that nature.

23 Q. And that's helpful in terms of the
24 start date. And then the end date he had in his
25 report as 2015. I noted that the -- I think the

1 last Hadnot Point/Holcomb Boulevard report was
2 published in 2013. Is that consistent with your
3 understanding?

4 A. The last report series was released in
5 March 2013.

6 Q. Did -- did the work related to the
7 Hadnot Point/Holcomb Boulevard modeling at ATSDR,
8 did it conclude in March 2013 or did it go on
9 another year until 2015?

10 A. The actual modeling activities and data
11 analysis activities and report publishing concluded
12 March 2013. I may have been asked by the
13 epidemiologists to forward them the final modeling
14 results after March of 2013, but I don't recall the
15 exact date.

16 Q. Were you doing any work on the modeling
17 in the ATSDR, I guess, either Tarawa Terrace or
18 Hadnot Point/Holcomb Boulevard models, in 2015?

19 A. No, I was not.

20 Q. Okay. So the -- the time frame is just
21 slightly off a little bit in his report, it sounds
22 like?

23 A. That is correct.

24 Q. Okay. I just wanted to clarify that.

25 So you -- you worked on the ATSDR

1 models for Tarawa Terrace and Holcomb
2 Boulevard/Hadnot Point -- Hadnot Point/Holcomb
3 Boulevard for just over a decade; is that right?

4 A. Yes, that would be correct, although
5 the initial work plan development probably was in
6 early 2003 or maybe 2002, internal, internal work
7 plan.

8 Q. Understood. You said 2002, 2003?

9 A. Yes.

10 Q. Okay. 11, 12-year time frame?

11 A. That is correct.

12 Q. For the 11, 12-year time frame for the
13 work that you and your colleagues at ATSDR did
14 related to the Tarawa Terrace and the Hadnot
15 Point/Holcomb Boulevard models, correct?

16 A. That is correct.

17 Q. Okay. And during that period of time,
18 you were ATSDR's project officer for the exposure
19 dose reconstruction program, correct?

20 A. That is correct. I was the project
21 officer from the beginning of the exposure dose
22 reconstruction program, which was probably 2004 or
23 '5.

24 Q. Okay. And then you were also the --
25 the lead or the project manager for ATSDR's water

1 models on Camp Lejeune, correct?

2 A. That is correct.

3 Q. Okay. Now, when you were employed
4 during this period of time by ATSDR working on the
5 Camp Lejeune modeling, you were a federal
6 government employee, correct?

7 A. That is correct.

8 Q. Do you remember what grade you were
9 sort of in the GS system in terms of employed?

10 A. It changed over time because I was
11 classified under the Office of Personnel
12 Management's research grade evaluation system.

13 Q. Sure.

14 A. So I was promoted twice from a GS-13,
15 which is where I came into ATSDR, applied to be
16 reclassified as -- under the research grade, and
17 then was promoted to a GS-14 and a GS-15.

18 Q. When were you promoted to a GS-15?

19 A. I would have to look at my electronic
20 personnel file.

21 Q. Sure. Were you a GS-15 by the time you
22 were working on the Camp Lejeune water models at
23 ATSDR?

24 A. Somewhere in there. Not necessarily at
25 the beginning.

1 Q. Okay. I am going to hand you what I'm
2 marking as Exhibit 8.

3 (DFT. EXHIBIT 8, Federal employee
4 profile for Morris L. Maslia, was marked for
5 identification.)

6 BY MR. ANWAR:

7 Q. I -- I looked you up on the federal
8 government employee lookup tool, and you're welcome
9 to look me up, too, as a federal employee. But
10 does this document I hand you accurately reflect
11 your GS grade and your salary while employed at
12 ATSDR between 2004 and 2018?

13 A. Well, it's incorrect because I retired
14 on December 31st, 2017.

15 Q. Okay. Aside from the 2018 year, for
16 the other years, does that generally look correct?

17 A. I don't recall being a GS-15 all the
18 way down to 2004 because I do recall them -- under
19 the research grade evaluation program, what they do
20 is, depending on the grade, but at the 13 and above
21 they should review you every four to five years,
22 maximum. So they would -- you -- they call in a
23 panel and have experts and then they score you on a
24 point basis. And then if you make above a
25 certain -- a certain point level, then the agency

1 has to say yes, we've got a GS-15 position
2 available or not, okay?

3 So again, I just don't recall it being
4 in 2004, but I would have to look at my own -- I
5 know you pulled this off the -- I've got my own
6 electronic personnel folder at home, or it was on
7 my ATSDR LAN drive, because they wanted everybody
8 to keep a copy of their personnel -- electronic
9 personnel folder when they went to digital versions
10 of it. So I could tell by those. I'm familiar
11 with the -- whatever it is, SF-171 form that tells
12 each year or whatever when you get promoted.

13 Q. Sure. Would the salary amounts, do
14 they look roughly right?

15 A. They -- they -- they look, from my
16 recollection, correct, yes.

17 Q. Okay. And so for that 11- or 12-year
18 period, would it be fair sort of roughly to
19 estimate that your total salary, cumulative salary,
20 during that period exceeded a million dollars,
21 correct?

22 A. I've never -- I've never added it up,
23 to be quite honest about it, so I would need to add
24 that up before...

25 Q. Okay. But if we added that up and I

1 told you it's over a million dollars, do you have
2 any reason to dispute that?

3 A. No.

4 Q. Okay. Besides your salary as an ATSDR
5 employee and the compensations and billings we've
6 discussed related to your retention or your role as
7 an expert in the litigation, have you received any
8 other compensation related to Camp Lejeune?

9 A. No, I have not, nor have I ever.

10 Q. Now, if I remember correctly -- and
11 you're welcome to refer to your CV as we're going
12 through this. It's page 121 in your expert report.
13 You started at ATSDR in 1992?

14 A. Let me just get there, so --

15 Q. Sure.

16 A. -- I'm on the page that you're
17 referring to. I started at ATSDR in 1992, that's
18 correct.

19 Q. And you retired in 2017, right?

20 A. December 31st, 2017.

21 Q. And as we just discussed, you worked on
22 ATSDR's Camp -- the water modeling related to Camp
23 Lejeune for Tarawa Terrace and Hadnot Point/Holcomb
24 Boulevard from about 2003 to 2013, 2014?

25 A. Probably. I want to say through 2013.

1 I was being funded in part at that time by the
2 Department of Navy, and so whatever they put in the
3 budget for 2014, it would not have been funded
4 by -- to my knowledge, by Camp Lejeune because the
5 modeling was completed, okay.

6 Q. Okay. And give or take, for a little
7 over -- for roughly a little over a decade, I think
8 we said 11 or 12 years, you worked on Camp Lejeune
9 water modeling at ATSDR, right?

10 A. That is correct. We did have, though,
11 again, because I was not only project chief or
12 scientific technical project officer for Camp
13 Lejeune, but I was also over the exposure dose
14 reconstruction program. We had other EDRP
15 activities and a couple of sites that we worked in,
16 not using Camp Lejeune money, but using the
17 agency's other funds.

18 Q. Okay. You started at ATSDR in '92.
19 You left in 2017, and you worked -- so that's,
20 what, roughly 25 years?

21 A. Yes.

22 Q. Okay. And you worked on Camp Lejeune
23 water modeling for close to half of that, is that
24 right, at ATSDR?

25 A. Did we say 10 or 11 years, yes.

1 Q. Okay.

2 A. Maybe slightly less. Maybe slightly
3 less, but...

4 Q. Understood. Was the water modeling for
5 Camp Lejeune a significant portion of your work
6 portfolio at ATSDR?

7 A. It was a substantial, but there were
8 other sites, as I said, prior to Camp Lejeune and a
9 couple of sites -- or a couple of analyses that
10 were not Camp Lejeune related.

11 Q. Focusing on that period between 2002,
12 2003 to 2013, what percentage of your work would
13 you say was related to the ATSDR's Camp Lejeune
14 modeling?

15 A. I'll start after about mid-2003. I
16 think that's when the ATSDR, I assume, got approval
17 from either the Marine Corps or the Navy to expend
18 the budget money on Camp Lejeune. I would say it
19 was probably 95 percent on different aspects of
20 Camp Lejeune.

21 Q. As I was looking at your -- your CV,
22 and specifically I was looking at your list of
23 publications, without looking each and every one
24 up --

25 A. Right.

1 Q. -- it's on page 130.

2 A. Okay. Okay. I'm there.

3 Q. I counted about nine or ten articles
4 that you've published related to the modeling work
5 you did on Camp Lejeune at ATSDR; is that right?

6 A. That sounds about right. It would be
7 agency reports. It would be journal articles and
8 there were some symposia presentations.

9 Q. Do you have any -- well, let me ask it
10 this way. Just ballpark, not holding you to any
11 specific number, how many publications, symposiums,
12 presentations, have you given related to the Camp
13 Lejeune water modeling?

14 A. I would really have to go and count
15 them up. I just don't feel answering truthfully if
16 I just picked a number out.

17 Q. Would you -- I think I identified nine
18 publications. Would you agree over ten?

19 A. Yes.

20 Q. Do you think over 20?

21 A. If you count some symposia
22 presentations where we had to actually submit a
23 manuscript, sometimes we did, and others we just
24 did, like, PowerPoint presentations, okay?

25 Q. So potentially over 20?

1 A. Right, yes.

2 Q. What about over 30?

3 A. That may come under other activities.
4 Like I was adjunct professor at the Emory
5 University Rollins School of Public Health, and so
6 I would give some case studies to my students using
7 what was publicly released from Camp Lejeune. And
8 I may have been asked by other ATSDR professionals
9 who were teaching other courses on statistics or
10 risk assessment at Emory to be a guest speaker for
11 my -- and I would give, again, things we had
12 already published or publicly released by the
13 agency about Camp Lejeune.

14 Q. Would you agree that the work you did
15 on the water modeling for Camp Lejeune at ATSDR was
16 a significant part of your career at ATSDR?

17 A. I would say it was substantial. It
18 would not be the complete time.

19 Q. And I saw on your CV that you, in 2015,
20 received the 2015 Excellence and Environmental
21 Energy Award, the grand prize, from the American
22 Academy of Environmental Engineers and Scientists;
23 is that right?

24 A. That is correct, sir.

25 Q. And was that related to the water

1 modeling work that you did at ATSDR on Camp
2 Lejeune?

3 A. Yes, it was.

4 Q. What is AEEES?

5 A. It's a professional organization, as
6 the name implies, of environmental engineers and
7 other engineers and scientists, and they run a
8 competition each year with different categories,
9 for example, consulting small projects, government
10 projects, and research projects.

11 Q. Okay.

12 A. And I mean, they put on webinars and
13 things of that nature, continuing education
14 courses.

15 Q. I saw the picture that you produced
16 holding the award. You looked very happy. What
17 did that award mean to you?

18 A. It meant -- it was especially
19 meaningful not just to me, but for our entire team
20 because an outside organization recognized the
21 significance of our work and contribution about
22 Camp Lejeune to the profession.

23 Q. Are you proud of that award?

24 A. Yes, I am.

25 Q. Would you describe it as one of the

1 highlights of your career?

2 A. Yes.

3 Q. How would you describe the work you've
4 done on the Camp Lejeune water modeling at ATSDR in
5 the context of your career?

6 A. I would say it was one of the similar
7 works that I have done, just like prior to Camp
8 Lejeune, Dover Township. Toms River, New Jersey
9 was also a similar piece of work. It was at the
10 U.S. Geological Survey, the work on the Floridian
11 RASA was also a similar piece of work.

12 Q. Now, in your prior deposition we
13 briefly discussed some e-mail exchanges that you
14 had with the Bell Legal Group in a 2009/2010 time
15 frame. Do you recall that?

16 A. In the September deposition?

17 Q. Correct.

18 A. I don't specifically recall that, but
19 if it's in the verbatim transcript, then we
20 discussed it.

21 Q. Okay. I'll show you one of them later.

22 A. Okay.

23 Q. And then you were retained by the Bell
24 Legal Group in July 2022 to serve as an expert in
25 this litigation, right?

1 A. That is correct.

2 Q. I was wondering what -- what led you or
3 how did you decide to serve as an expert witness in
4 this case?

5 A. Well, after I retired, of course, I --
6 I did a few consulting jobs just to keep in the
7 profession, keep my mind fresh. And then I was
8 approached and I felt because I had probably the
9 most internal knowledge -- not internal ATSDR, but
10 about the modeling I'm talking about, about what --
11 what we did, what the results meant, our confidence
12 in them, and that I could advise them on those
13 aspects of it.

14 Q. Are you -- how do I ask this? Is one
15 of the factors you considered in serving as an
16 expert in a litigation helping plaintiffs pursue
17 their claims related to exposure to Camp Lejeune
18 water?

19 A. That never -- that was never discussed
20 with me and that was never my -- my understanding,
21 but rather that I was a technical expert on water
22 modeling.

23 Q. Do you want to help the plaintiffs in
24 this case pursue their claims related to exposure
25 to Camp Lejeune water?

1 MR. DEAN: Object to the form of the
2 question.

3 THE WITNESS: That really would be a
4 legal question. I'm not really involved in legal
5 aspects other than being retained to explain what
6 we did, what I did, and the meaning of the work at
7 -- the water modeling that came from Camp Lejeune.

8 BY MR. ANWAR:

9 Q. And I guess I'm not asking you sort of
10 in the legal sense of whether your work is being
11 used to support the plaintiffs. I'm just asking
12 you personally, do you want to help the plaintiffs
13 in the litigation?

14 MR. DEAN: Object to the form of the
15 question.

16 THE WITNESS: When we did work at ATSDR
17 and even when I was at the USGS, we did what I
18 would classify as science in the public's interest,
19 okay? And so it's important to me that the public
20 understands what we did and how we did it, and if
21 it can help them come to a better understanding of
22 what occurred at Camp Lejeune or Toms River, Dover
23 Township, New Jersey, then that's a good -- good
24 use of my time, expertise, and the taxpayer's
25 money.

1 BY MR. ANWAR:

2 Q. So does your desire to -- or your
3 involvement in the litigation, does that stem from
4 a desire to explain the work that you did related
5 to Camp Lejeune at ATSDR?

6 A. Yes, yes.

7 Q. Do you feel like your work is under
8 attack in the litigation?

9 A. Not personally under attack. I believe
10 there's been mischaracterization of the work and
11 perhaps at different points misunderstanding of
12 what we were tasked with or charged with doing and
13 the reliability of the work.

14 Q. Do you --- is one of the motivating
15 factors in serving as an expert for the plaintiffs,
16 is it to defend your work?

17 MR. DEAN: Object to the form.

18 THE WITNESS: Well, I think if I'm
19 asked a question about our work, I'm defending
20 the -- the work, okay? So -- so but my objective
21 is not necessarily to be hired so I can defend what
22 we did. I would like to think that more of
23 explaining what we did and explaining, you know,
24 assumptions, limitations, and data analyses and
25 things of that nature.

1 BY MR. ANWAR:

2 Q. Aside from sort of the scientific
3 explanation portion of it or defending or
4 explaining your work, is money a motivating factor
5 at all serving as an expert?

6 A. Not at all, not at all.

7 Q. If the Court were to say, hey, the work
8 that you did at ATSDR was very fine, but we don't
9 -- we, the Court, don't believe it's appropriate
10 for use in this -- this case, how would that make
11 you feel?

12 A. Well, I would have to understand or be
13 there when someone said -- said that. That's sort
14 of a hypothetical. And I've never looked at the
15 work as defending it because the Court is going to
16 say, we don't believe it, okay? That's the best I
17 can answer.

18 Q. Okay. We'll talk a little bit more
19 about some of these other subjects later in the
20 deposition. Did you feel like you were defending
21 your work from the National Research Council?

22 MR. DEAN: Object to the form.

23 THE WITNESS: You mean, the results of
24 -- of their report?

25 BY MR. ANWAR:

1 Q. I guess, did you perceive -- let me ask
2 it differently. Did you perceive the National
3 Research Council's comments on the ATSDR Camp
4 Lejeune water modeling to be an attack?

5 MR. DEAN: Object to the form.

6 THE WITNESS: I believe and I believe
7 we have explained, on a couple of occasions,
8 internal documents as well as the published article
9 in Groundwater, that it was a mischaracterization
10 and misunderstanding and there was what appeared to
11 be -- because I requested additional meetings and
12 they would not meet with us. And I believe they
13 made their -- part of their decision -- I didn't
14 review the entire report, so I'm not talking about
15 the toxicology or the epi or the rest or anything
16 like that.

17 Q. Sure.

18 A. But they are all in conclusion that
19 they -- there was a misunderstanding,
20 mischaracterization, of some of the key things. So
21 yes, I mean, it's...

22 Q. Yes, it was an attack, is what
23 you're --

24 A. I wouldn't call it an attack, no. I
25 would say it was a mischaracterization and

1 misunderstanding.

2 Q. Okay. What about the Navy's critique
3 of the ATSDR water modeling for Camp Lejeune? How
4 did you perceive that?

5 A. I perceived that as a very usual
6 professional discourse that you have some work,
7 whether it's a model, data analyses or whatever,
8 and you publish it, whether it's a peer-reviewed
9 journal or peer-reviewed report, and the Navy had
10 some technical comments on the report, and so we
11 addressed them, in other words. So -- and until
12 this day, I still perceived it as a professional
13 exchange.

14 Q. What about Prabhakar Clement's --
15 Dr. Clement's article?

16 A. Right.

17 Q. How did you perceive that?

18 A. At the time it was published, which I
19 believe is 2010, it came right after the
20 publication of the NRC report. And again, I
21 thought there were some misunderstandings and
22 mischaracterizations. I do understand now that
23 part of it was sort of philosophical. In fact, he
24 mentioned that in his rebuttal to us. He was
25 looking at more philosophical issues, but I felt

1 the need to respond editorially to Dr. Clement's
2 article.

3 Q. Sure. Now, in the instance of the NRC
4 and the Navy and Dr. Clement, you did respond to
5 each one of those, correct?

6 A. The -- to the NRC we wrote or I -- I
7 oversaw an internal document, okay, and advised my
8 management chain and leadership that we needed to
9 respond to the NRC, I guess, agency, and they and
10 CDC quickly invoked the 11th commandment, thou
11 shall not critique the NRC.

12 Q. Why do you think that is?

13 A. I have no idea, but we point -- and
14 that internal document was very -- I mean, it was
15 very technically oriented in going -- I wouldn't
16 say line by line, but topic by topic and explaining
17 where we saw some issues with the NRC report. And
18 I do know that -- I believe it was Dr. Portier,
19 when he -- Dr. Portier in 2009 was not director of
20 ATSDR, but when he became director, I provided him
21 with a copy of that internal -- it's called
22 document, okay, it wasn't a memo or anything like
23 that. And he had a couple of topics in his letter
24 to -- and I forget who he wrote exactly to, but
25 about -- about our work, about the NRC report.

1 Q. If I'm understanding you correctly, you
2 wanted to respond to NRC, correct?

3 A. Yes.

4 Q. Okay. And you had put together a
5 response?

6 A. That is correct.

7 Q. But the response was kept, for whatever
8 reason, by CDC and ATSDR, internal, correct?

9 A. I know by ATSDR. I don't know if it
10 ever made it up to CDC --

11 Q. Okay.

12 A. -- that's over ATSDR, but it did make
13 it up through my management chain, okay?

14 Q. And it was kept internal, correct?

15 A. That is my understanding.

16 Q. Okay. And you did respond to the
17 Navy's comments or critiques, correct?

18 A. That is public information on the ATSDR
19 website, yes.

20 Q. Okay. That -- there's this ATSDR
21 report that's -- we'll look at it later, but it's
22 sort of named response to the Navy's letter. Did
23 you draft that response?

24 A. Yes.

25 Q. Okay. And then --

1 A. With assistance of team members and
2 some epidemiologists.

3 Q. Understood. And the article that you
4 published along with, I believe, Dr. Aral and some
5 of the other ATSDR colleagues, Jason Sautner, maybe
6 Rene, a response to Dr. Clement's article as well,
7 correct?

8 A. That is correct, yes, the team. I
9 listed all of the team. When I say team, from an
10 agency standpoint, so that's why there are some
11 epidemiologists that's coauthors on it as well.

12 Q. And when I say -- because we were
13 talking -- just for purposes of the record, because
14 we were talking about the 2000 Clement article,
15 when I'm talking about Dr. Clement's article now,
16 it's the article, I think, in the mid-2000s, 2010,
17 2011, focused on hindcasting, correct?

18 A. That is correct.

19 Q. Okay. Did you introduce the
20 plaintiffs' lawyers to -- in this case to
21 Dr. Konikow?

22 A. Yes, I did. When I say introduced, let
23 me clarify. I think they were looking for a name
24 of somebody who was nationally renowned in fate and
25 transport modeling, and so from my days at USGS, I

1 knew Dr. Konikow.

2 Q. Okay. So you connected Dr. Konikow
3 with the Plaintiffs' Leadership, correct?

4 MR. DEAN: Object to the form.

5 THE WITNESS: I just provided contact
6 information.

7 BY MR. ANWAR:

8 Q. Okay. Did you introduce or provide
9 contact information to the plaintiffs' lawyers in
10 this case for Rob -- Bob Faye?

11 A. Yes.

12 Q. When did you do that?

13 A. I really don't remember.

14 Q. Was -- was it in the last 30 days?

15 A. It was prior to that.

16 Q. Last 60 days?

17 A. I've been, as you said, involved in
18 this case since July of 2022.

19 Q. I won't hold you to a precise date.
20 Was it in 2025?

21 A. No, it was -- must have been sometime
22 in 2024.

23 Q. Do you recall whether it was before or
24 after the September 26th deposition, 2024?

25 A. It would have been before.

1 Q. Did you -- do you have Bob Faye's
2 contact information?

3 A. Yes, I do.

4 Q. What is it?

5 A. I've got a phone number and an e-mail.

6 Q. Okay.

7 MR. DEAN: Hold on. I have his info as
8 well. I don't mind -- he's a retained consulting
9 expert. He's not been disclosed as an expert. So
10 if you were to get his contact information, I would
11 request that you not talk to him -- talk to
12 Mr. Faye without me being present or on the phone.

13 MR. ANWAR: Okay.

14 MR. DEAN: If at all because he is,
15 again, a confidential consulting expert for the
16 PLG.

17 MR. ANWAR: Okay. We can discuss that
18 separately.

19 MR. DEAN: Sure.

20 BY MR. ANWAR:

21 Q. Did you introduce or provide contact
22 information for any of the other experts for the
23 plaintiffs?

24 A. Just the two that you have mentioned,
25 Dr. Konikow and Mr. Faye.

1 Q. In documents that we received from
2 Dr. Konikow, there was an e-mail in there between
3 you and Dr. Konikow. I think you were e-mailing
4 him, and it included a line, it said "don't know if
5 Kevin explained the politics of the case now, but
6 it's quite eye opening to me." Do you recall that?

7 A. I may have said that in the e-mail. I
8 mean, if I saw the e-mail, then we could see.

9 Q. Sure. What did you mean by the
10 politics of the case?

11 A. Well, Camp Lejeune has always been
12 surrounded, you know, from a political standpoint,
13 okay, because you have different parties, meaning
14 the Navy, the CAP, ATSDR, and so on, having
15 different points of view, so that makes it -- and
16 you're in public health, which is -- always has
17 politics associated with public health. And so
18 that's what -- and then they passed or perhaps I
19 was aware -- I was aware of the Janey Ensminger
20 Act, okay. That would have been political to get
21 that passed. And I believe at the time they had
22 already passed the PACT Act, which contained the
23 section -- I forget the exact number for Camp --
24 Camp Lejeune.

25 So that's what I was referring --

1 referring to, is most of the time I know the work
2 that -- I can't speak for Dr. Konikow, but the work
3 that I did at, say, USGS, okay, and even most of
4 the work that I did at ATSDR, with the exception of
5 Dover Township, Toms River, and Camp Lejeune, were
6 not -- did not have necessarily political aspects
7 to them in terms of legislation being passed.

8 Q. Understood.

9 A. Things like that.

10 Q. I -- and we talked about this in your
11 last deposition, and I know that you were part of a
12 group from ATSDR that testified to Congress,
13 correct?

14 A. That would have been in, like,
15 June 12th, 2007.

16 Q. Okay. And that was about Camp Lejeune,
17 correct?

18 A. Right.

19 Q. Was it a House Committee Hearing, if I
20 remember correctly?

21 A. It was a Senate Subcommittee Hearing.

22 Q. Oh, I'm sorry.

23 A. And I actually was -- did not provide
24 the testimony. I believe it was Dr. Tom Sinks. I
25 was just there, I guess, as a -- again, a technical

1 expert, but I was seated at the table.

2 Q. Okay. Have you had any direct
3 conversations -- have you directly had any
4 conversations with any Congress members about Camp
5 Lejeune?

6 A. No, I have not.

7 Q. You have a quote in your -- your e-mail
8 signature block currently from Nobel prize
9 physicist Richard P. Feynman. Do you know what I'm
10 talking about?

11 A. Dr. Feynman, yes, yes, I do.

12 Q. And I believe the quote is "I would
13 rather have questions that can't be answered than
14 answers that can't be questioned"; is that right?

15 A. That is correct.

16 Q. Okay. Who is Richard P. Feynman?

17 A. He's a Nobel -- he's since deceased,
18 but he was a very young Nobel prize winning
19 physicist. And the laypeople probably know him for
20 his participation on and his famous experiment on
21 the Challenger explosion.

22 Q. Okay.

23 A. And I believe that's where he put that
24 quote in, but I wouldn't swear -- swear to it, and,
25 in fact, I just bought a copy of -- of a book about

1 -- about him.

2 Q. Okay. Why did you include that quote
3 in your signature block?

4 A. I thought it's appropriate to
5 everything in -- in life. It's very succinct.
6 Don't be afraid to say you don't know the answer,
7 but that's better than saying don't ask me the
8 question.

9 Q. Would you agree that that quote is
10 applicable to all of the work that you've done as
11 an engineer or an environmental scientist?

12 A. I would say it's a more philosophical
13 statement, okay?

14 Q. One that would apply to -- and you said
15 any aspect of life, right?

16 MR. DEAN: Object to the form.

17 THE WITNESS: Well, that's how I am
18 interpreting it, okay? I wasn't there when
19 Dr. Feynman stated it or published it, so I don't
20 know what was in his mind, but it seemed to me,
21 from a philosophical standpoint, it, you know, it
22 resonates with me just philosophically.

23 BY MR. ANWAR:

24 Q. Okay. We have been going for a little
25 over an hour. Do you want to -- should we take

1 another break?

2 A. Sure, yes.

3 THE VIDEOGRAPHER: Okay. We're going
4 off record. The time is 11:23 a.m.

5 (A recess transpired.)

6 THE VIDEOGRAPHER: Okay. We are going
7 back on the record. The time is 11:32 a.m.

8 BY MR. ANWAR:

9 Q. We are back on the record from a short
10 break. Mr. Maslia, are you okay to continue?

11 A. Yes, I am.

12 Q. Okay. And did you speak with your
13 lawyer during the break?

14 A. No, I did not.

15 Q. Could you turn to page 145 of your
16 expert report?

17 A. Yes. Okay.

18 Q. 145 is a -- includes on it a figure or
19 a chart laying out the team that worked on the
20 ATSDR water modeling for Tarawa Terrace and Hadnot
21 Point/Holcomb Boulevard, their titles and sort of
22 their roles; is that right?

23 A. That is correct.

24 Q. Okay. And you've included Xs. A dark
25 green X for senior author of a report chapter. A

1 light green X for a contributing author of a report
2 chapter, and then a light red O for project
3 management and coordination; is that right?

4 A. That's correct.

5 Q. Okay. As I -- as I look at this
6 figure, is it fair to say that you were a senior
7 author or a contributing author or project managed
8 and coordinated every single chapter of the Tarawa
9 Terrace model reports and the Hadnot Point/Holcomb
10 Boulevard model reports?

11 A. I was the technical or scientific
12 project officer over all of the Camp Lejeune water
13 modeling.

14 Q. Okay.

15 A. It's just not shown on here. You can't
16 print three different colors on the same box, okay?
17 So -- and then where the dark Xs are, obviously I
18 was the senior author on that and contributed to
19 most of the reports, but there were some individual
20 chapters or supplements that I did not have
21 authorship of.

22 Q. But you still oversaw and managed,
23 correct?

24 A. Yes, yes.

25 Q. Coordinated, managed?

1 A. Yes.

2 Q. Okay. In coordinating and managing
3 every chapter of the two models, Tarawa Terrace and
4 Hadnot Point, would you have reviewed and approved
5 every chapter on each of those reports?

6 A. I would have reviewed and then said
7 it's ready to go to -- through the agency peer
8 review and then to external -- or if any review
9 comes back and then go out to external peer review.
10 It's ultimately up to the agency, I guess, Office
11 of Science and CDC Office of Science to give the
12 final release.

13 Q. Understood. Would you be the one to
14 make the decision it's ready to go to the next step
15 of the process, the peer review process?

16 A. Yes.

17 Q. And in making that final decision,
18 would you -- for each chapter or each report, would
19 you have an opportunity to review and comment and
20 suggest edits to particular chapters of either of
21 the model reports?

22 A. Yes.

23 Q. Okay. We talked about, at the
24 beginning of the deposition, the -- sort of the
25 most recent calculations you've run --

1 A. Yes.

2 Q. -- with respect to geometric bias.

3 A. Right.

4 Q. As to the Tarawa Terrace model,
5 correct?

6 A. Yes, yes.

7 Q. That was in the last month or so,
8 correct?

9 A. That is correct, sir.

10 Q. Aside from that, do you stand by every
11 chapter of the Tarawa Terrace model?

12 A. Yes.

13 Q. And is that also true -- do you stand
14 by every chapter of ATSDR's Hadnot Point model?

15 A. Yes.

16 Q. Again, aside from that geometric bias
17 discussion that we had, is there anything that
18 you're aware of that should be changed or corrected
19 in either the Tarawa Terrace set of model reports
20 or the Hadnot Point/Holcomb Boulevard set of model
21 reports?

22 A. There's issues brought up by the DOJ's
23 experts that I've responded to.

24 Q. Okay.

25 A. Okay. Absorption parameters, for

1 example, the results, and they do not impact at all
2 the results of the Tarawa Terrace analyses.

3 Q. Understood. In preparing your expert
4 report, either the primary -- the main one or the
5 rebuttal report, did you rerun either of the Tarawa
6 Terrace or the Hadnot Point and Holcomb Boulevard
7 model?

8 A. No.

9 Q. Were your reports, the main report and
10 the rebuttal report, were they based on the ATSDR
11 reports that are publicly available now?

12 A. You're talking about my expert report?

13 Q. Correct.

14 A. Yes, they were all -- whatever was
15 publicly available on the ATSDR website, which
16 would be all the Tarawa Terrace expert panel
17 reports, response to the Navy, and the Hadnot
18 Point/Holcomb Boulevard series of reports.

19 Q. Okay.

20 A. And that's what my expert report would
21 rely on.

22 Q. Okay. And I think you've clarified
23 that for me. Basically what I'm getting at is you
24 didn't, you know, go and put MODFLOW on your
25 computer and run the groundwater model again. You

1 didn't go and get MT3DMS and run the fate and
2 transport model again, correct?

3 A. Not at all, no, I do not have those on
4 my computer.

5 Q. And same with EPANET and the water
6 distribution model, you didn't --

7 A. I did not rerun it, although I do have
8 EPANET on my computer at home.

9 Q. Okay. Do you consider yourself an
10 expert in groundwater modeling generally?

11 A. Yes.

12 Q. Any particular aspects of groundwater
13 modeling that you consider yourself an expert or do
14 you consider yourself an expert in all of it?

15 A. I would consider myself an applied
16 researcher, so applying the available models that
17 have been developed by others to sites, okay, and
18 doing that as well as experience with
19 post-calibration analyses to assess the goodness of
20 fit of models.

21 Q. In terms of groundwater modeling, do
22 you consider yourself an expert in groundwater flow
23 modeling?

24 A. Yes.

25 Q. Do you consider yourself an expert in

1 contaminant fate and transport modeling?

2 A. I would consider myself very
3 knowledgeable.

4 Q. Okay. But not an expert?

5 MR. DEAN: Object to the form of the
6 question.

7 THE WITNESS: I mean, I'm an expert
8 from the standpoint that I've had courses in
9 contaminant fate and transport. I applied some and
10 -- but I don't do it -- I did not do it routinely,
11 but I have run contaminant fate and transport
12 models.

13 BY MR. ANWAR:

14 Q. Do you consider yourself an expert in
15 water distribution modeling?

16 A. Yes.

17 Q. Why do you consider yourself an expert
18 in water distribution modeling?

19 A. Well, we've applied -- when I say we,
20 at ATSDR, we applied water distribution system
21 modeling to a couple of sites: Dover Township,
22 Toms River, New Jersey as well as Camp Lejeune.
23 And we were -- for the Dover Township analysis, we
24 were actually awarded the best practice oriented
25 paper in 2000 by the Journal of Water Resources

1 Planning and Management based on the work in field
2 monitoring of the water distribution system in Toms
3 River, New Jersey. So yes, I would consider myself
4 an expert there.

5 Q. Okay. Let's turn to page 17 of your
6 report.

7 A. Of my expert?

8 Q. Your main report, yes.

9 A. Expert report?

10 Q. Correct.

11 A. Page 17. Okay.

12 Q. Page 17 contains a summary of your
13 opinions; is that right?

14 A. It has one item.

15 Q. Oh, I'm sorry. 17 and 18.

16 A. And 19.

17 Q. And 19. 17 through 19?

18 A. Yes.

19 Q. Starting on 17 is a section entitled
20 "summary of your opinions" and it concludes on page
21 19, right?

22 A. Yes.

23 Q. Okay. I wanted to focus on opinion
24 number three. It states, "the reconstructed
25 simulated monthly mean contaminant concentrations

1 of PCE, TCE, 1-2 DCE, vinyl chloride, benzene at
2 Tarawa Terrace, Hadnot Point and Holcomb Boulevard
3 are contained in ATSDR report appendices A-2 for
4 Tarawa Terrace, A-3 and A-7 for Hadnot Point, and
5 A-8 for Holcomb Boulevard." Did I read that
6 correctly?

7 A. Yes.

8 Q. Okay. And then opinion three goes on.
9 It says, "these reconstructed monthly mean
10 concentrations are also included in this report in
11 appendixes H, I, J and K" -- well, let me -- "these
12 reconstructed monthly mean concentrations are also
13 included in this report in appendixes H, I, J and
14 K, comma, are reliable and represent, within
15 reasonable scientific and engineering certainty,
16 the contaminant levels in selected water-supply
17 wells and in finished water at Camp Lejeune from
18 1953 to 1996." Did I read that correctly?

19 A. That is correct.

20 Q. Okay.

21 A. The ones for Hadnot Point probably go
22 to 2008. That's what the model runs did.

23 Q. Okay.

24 A. I'm not sure about the '96. That may
25 have been when the wells -- all the wells -- I --

1 but I do recall, because we had 2008 or 2006
2 through 2008, a remediation rate of Hadnot Point
3 that ran the model all the way out to 2008. So I
4 would...

5 Q. When you say there that the
6 reconstructed mean -- or reconstructed monthly mean
7 concentrations in the ATSDR reports are reliable
8 and represent, within reasonable scientific and
9 engineering certainty, what do you mean by
10 reasonable scientific and engineering certainty?

11 MR. DEAN: Object to the form.

12 THE WITNESS: When you conduct
13 scientific and engineering analysis application and
14 you come up with the value of -- that you believe
15 is the most likely value and -- then there's
16 always, you know, plus or minus a certain percent,
17 okay, and that's accepted. That's a pragmatic
18 engineering approximation to a modeling problem,
19 okay? You do the best you can and see if the level
20 of uncertainty is way beyond the information that
21 you have in terms of giving a reliable solution or
22 if it's within, then -- but there's always some --
23 some differences or errors in any of the solutions.

24 Q. When you say reliable there, what do
25 you mean? Is that --

1 A. Reliable, to me, means that -- and I'm
2 going to say for their ATSDR analyses, of course,
3 that are published -- somebody could pull that off
4 the shelf or off -- offline, I guess, now, and with
5 the model input files, duplicate what we did, okay?

6 Q. In this opinion, are you stating -- are
7 you opining that the reconstructed monthly mean
8 concentrations in the ATSDR reports are accurate
9 within a reasonable degree -- or reasonable
10 scientific and engineering certainty?

11 A. Yes.

12 Q. So it's your opinion that the simulated
13 monthly mean concentrations are accurate within
14 reasonable scientific and engineering certainty?

15 A. They are the most likely values to
16 occur.

17 Q. And --

18 A. Or to have occurred.

19 Q. When we're talking about reasonable
20 scientific and engineering certainty, help me
21 quantify that into a percentage. Are they
22 50 percent accurate, 75 percent accurate, 51
23 percent? Are they 90 percent likely to be
24 accurate?

25 MR. DEAN: Object to the form of the

1 question. Calls for legal conclusion.

2 THE WITNESS: Depending on the
3 application, not necessarily just on Camp Lejeune,
4 but in -- generally speaking, it depends on a lot
5 of factors. The quality of the field data. How
6 you constructed the model. What your calibration
7 targets may have been, or at least you try to
8 figure them out, and so each application will have
9 a different level of uncertainty, okay, and
10 reliability.

11 BY MR. ANWAR:

12 Q. What do you mean by depending on the
13 application?

14 A. Well, for example, we did water
15 distribution system modeling, okay? Water
16 distribution system modeling takes hour time steps,
17 not monthly, but hour time steps. And we measure
18 and we gather data because -- we personally
19 gathered them both in -- at Dover Township and at
20 Camp Lejeune. We had 15-minute readings per hour,
21 okay? So that's more data. So then you have to
22 assess that model based on the data that you have
23 and can you accept the difference between the
24 modeling results and the data that you -- that you
25 have and the way you interpret the data.

1 In other instances you may have monthly
2 data or sporadic data, and so the level of
3 reliability may change. And it also depends,
4 again, how you constructed the model. The size of
5 the grid, how you hydrogeologically conceptualized
6 the model. There's a lot of factors that go --go
7 into there, so you just can't -- I don't think it's
8 accurate to say on a blanket statement there's this
9 uncertainty in terms of percent or not percent, you
10 know.

11 Q. If the -- there is uncertainty to the
12 simulated monthly mean contaminant concentrations,
13 why were they -- those contaminant concentrations,
14 I'm just wondering, why were they produced in this
15 -- kind of this table format at the -- in multiple
16 places in the report, but do you know what I'm
17 referring to, at the end of Appendix A for Tarawa
18 Terrace, for instance?

19 MR. DEAN: Object to the form of the
20 question.

21 THE WITNESS: Can I just take a look at
22 Appendix A?

23 BY MR. ANWAR:

24 Q. Sure. Here, we'll go ahead and mark it
25 -- mark them both.

1 A. Okay. Oh, I've got a copy right here
2 that's unmarked. That's A. No, that's not A.
3 Here's Tarawa Terrace.

4 Q. Okay. I'll give you the one for the
5 court reporter.

6 MR. DEAN: Just use that.

7 THE WITNESS: Okay. Okay.

8 (DFT. EXHIBIT 9, Analyses of
9 Groundwater Flow, Contaminant Fate and Transport,
10 and Distribution of Drinking Water at Tarawa
11 Terrace and Vicinity, U.S. Marine Corps Base Camp
12 Lejeune, North Carolina: Historical Reconstruction
13 and Present-Day Conditions, Chapter A, Summary of
14 Findings, Bates-stamped
15 CLJA_Healtheffects-0000221172 through 0000221287,
16 was marked for identification.)

17 (DFT. EXHIBIT 10, Analyses and
18 Historical Reconstruction of Groundwater Flow,
19 Contaminant Fate and Transport, and Distribution of
20 Drinking Water Within the Service Areas of the
21 Hadnot Point and Holcomb Boulevard Water Treatment
22 Plants and Vicinities, U.S. Marine Corps Base Camp
23 Lejeune, North Carolina, Chapter A, Summary and
24 Findings Bates-stamped CLJA_Healtheffects-000022136
25 through 0000221535, was marked for identification.)

1 THE WITNESS: So based on the Appendix
2 2 in Tarawa Terrace?

3 BY MR. ANWAR:

4 Q. I am talking about Appendix A3 and A --
5 A3.

6 A. A -- in Tarawa Terrace it's Appendix
7 A3. It's questions and answers.

8 Q. Oh, I'm sorry. I have the wrong one.
9 You're probably right. A2, yeah.

10 A. Okay. A2. Okay. Could you repeat the
11 question?

12 Q. Sure. I guess given the uncertainty
13 and the -- the -- the application being important,
14 I was just wondering why were these concentrations
15 presented in the format that they were in A2?

16 A. By format, what do you mean?

17 Q. The summary -- I mean, you -- for
18 instance, can a person go on page A90 --

19 A. Okay. Hold on. A90. Okay.

20 Q. Stress period, 301, is for January of
21 1976 and the model simulated a PCE monthly mean
22 concentration of 73.96 micrograms per liter; is
23 that right?

24 A. That's directly, yes, from the model
25 output.

1 Q. Sure.

2 A. Okay.

3 Q. Do you know for sure that's what the
4 PCE concentration was in micrograms per liter in
5 January of 1976?

6 A. I would say the most likely value was
7 74 micrograms per liter, just rounding.

8 Q. Okay.

9 A. Most likely.

10 Q. Didn't a moment ago you say there are
11 sort of -- there's uncertainty associated with the
12 model outputs and there's a range --

13 A. Yes.

14 MR. DEAN: Let him finish the question
15 and then if I have an objection.

16 THE WITNESS: Okay. Okay. Oh, okay.
17 No problem.

18 MR. DEAN: Can you --

19 BY MR. ANWAR:

20 Q. Didn't you say that a moment ago?

21 MR. DEAN: Object to the form of the
22 question.

23 THE WITNESS: A moment ago I said
24 there's -- yes, I also said there's uncertainty
25 with the data; there's, you know, uncertainty

1 exists, okay?

2 BY MR. ANWAR:

3 Q. Why wasn't this numerical data
4 presented with the uncertainty, the range, and the
5 potential error bands for the data?

6 MR. DEAN: Object to the form of the
7 question.

8 THE WITNESS: I believe it was in
9 figure -- let me see if I can find the figure here.
10 Figure -- on page A60, figure -- the figure there,
11 A26, it's presented in terms of the 95 percent
12 confidence.

13 Q. Okay. Let's turn to page -- well, let
14 me -- let me ask some just for purposes of the
15 record questions. When we're talking about Camp
16 Lejeune water modeling, we're really talking about
17 two separate water models, correct? And what I
18 mean by that is there was a model that related to
19 Tarawa Terrace and then there was a separate model
20 that related to Hadnot Point and Holcomb Boulevard,
21 correct?

22 A. I'd say there was an analysis related
23 to Tarawa Terrace.

24 Q. Sure.

25 A. And then there were subsequent analyses

1 because of the complexity of Hadnot Point and
2 Holcomb Boulevard and the interconnection related
3 to those areas.

4 Q. Was the model for the analyses for
5 Tarawa Terrace, did that actually consist of two
6 separate models?

7 A. For Tarawa Terrace? Consisted of
8 MODFLOW and MT3DMS and then a mixing model. That
9 would be three models.

10 Q. Understood. And MODFLOW is a
11 groundwater flow model -- modeling software,
12 correct?

13 A. That is correct.

14 Q. And MT3DMS is a contaminant fate and
15 transport model, correct?

16 A. That is correct.

17 Q. For Tarawa Terrace, rather than running
18 a -- sort of a water distribution model, you used
19 the simple mixing model, correct?

20 A. No, that's -- that's mixing apples and
21 oranges, okay? Let's separate off water
22 distribution system modeling. For the groundwater
23 flow analyses we ran MODFLOW, which generated
24 groundwater flow velocities of different layers.
25 That's directly imported into MT3DMS. And then we

1 applied a flow-weighted mixing because you had
2 different wells turning on and off. And then we
3 used the mixing model, which was described on page
4 A40 in equations one and two, and that was because
5 all the wells mixed at the water treatment plant,
6 and that was the final output to which we compared
7 available samples that were collected at the water
8 treatment plant.

9 Q. Understood. So you assumed in the
10 Tarawa Terrace model that the -- the water from the
11 treatment plant was the same water that the end
12 user received, correct?

13 A. Yes.

14 Q. Now, I think that's what I was getting
15 at. The -- now, the Tarawa Terrace analysis was
16 completed in 2009, right?

17 A. The last chapter was published in 2009.

18 Q. Chapter A was published roughly 2007,
19 is that...

20 A. In -- because of the -- excuse me.
21 Because of the Senate Subcommittee Hearing, there
22 was an executive summary released June the 12th,
23 2007.

24 Q. Okay.

25 A. And then the full Chapter A, summary of

1 findings, was released in July of 2007. But other
2 work had been done. Again, it was a summary
3 document, so obviously it had results in here from
4 -- it was just a matter of finalizing the reports.

5 Q. And then the Hadnot Point/Holcomb
6 Boulevard analysis, that was completed in 2013,
7 right?

8 A. March 2013, the Chapter A, summary of
9 findings, and in that situation, rather than
10 individual additional chapters, the agency decided
11 to make supplements for the other contributing
12 analyses described in the summary of findings.

13 Q. You would agree that when running a
14 groundwater flow model using, for instance,
15 MODFLOW, there is some level of uncertainty,
16 correct?

17 A. Yes, yes.

18 Q. And when you run a fate and transport
19 model using, for instance, MT3DMS, there is also
20 some level of uncertainty associated with the fate
21 and transport aspect, correct?

22 A. Yes, but there are different types of
23 uncertainty, okay? In other words, there's what's
24 referred to as scenario uncertainty, and that is
25 your understanding or conceptualizing the system

1 that can be an error before you ever get to the
2 model. There's model uncertainty. For example,
3 someone were to try to apply an analytical model,
4 which assumes constant flow field in the
5 groundwater, constant velocities, then that would
6 be uncertain -- model uncertainty.

7 Q. And so when you're -- when you're using
8 a groundwater flow model, a MODFLOW, and then
9 taking the results and putting them into a fate and
10 transport model, an MT3DMS, doesn't that certainty
11 then accumulate because you're combining
12 uncertainty -- uncertain results with even more
13 uncertain results?

14 MR. DEAN: Object to the form of the
15 question.

16 THE WITNESS: That's -- actually, if
17 you read some papers published and all of that,
18 it's a common mistake is to linearly add up
19 uncertainty. It doesn't work that way, okay? It
20 may compound it. It may get reduced or whatever,
21 but you just can't add that you've got a 10 percent
22 uncertainty or a 95 percent confident band on the
23 flow model. You just can't say, okay, well, the --
24 the transport model has 90 percent, add the two
25 together and call it 92 and a half. It doesn't --

1 it doesn't work like that.

2 BY MR. ANWAR:

3 Q. And I think you just said it could
4 compound it, though, right?

5 A. You would have to look at the -- again,
6 the specific application, the specific site that
7 you're looking at, the specific model that
8 you're -- you're applying.

9 Q. And I'm just quoting back your words.
10 You would agree, though, it could compound it?

11 MR. DEAN: Object to the form of the
12 question.

13 THE WITNESS: I would not necessarily
14 say it would compound it. You would have
15 uncertainty associated with each of the models that
16 you applied as well as uncertainty in the data,
17 okay, that you're calibrating to. And so that's
18 why it's, I think, critical after you complete --
19 in our case it was a four-stage calibration, to try
20 to -- or even after a third-stage, try to assess
21 the goodness of fit of the model to data. To look
22 at sensitivity analyses, to look at uncertainty
23 analyses, and probabilistic uncertainty analyses to
24 quantify that, okay?

25 BY MR. ANWAR:

1 Q. Now, let's turn to page Roman numeral
2 three.

3 A. Chapter A?

4 Q. Chapter A, correct, of Tarawa Terrace,
5 which is, for the record, Exhibit 9.

6 A. Oh, okay. I'm sorry. Roman -- the
7 foreword?

8 Q. Correct. Okay. And you would agree
9 with me, there it says, in the foreword, "the
10 ATSDR, an agency of HHS, is conducting an
11 epidemiological study to evaluate whether in utero
12 and infant, up to one year of age, exposures to
13 volatile organic compounds in contaminated drinking
14 water at U.S. Marine Corps Base Camp Lejeune,
15 North Carolina, were associated with specific birth
16 defects and childhood cancers." Did I read that
17 correctly?

18 A. Yes, you did.

19 Q. Okay. And it goes on to say "the study
20 includes births occurring during the period 1968 to
21 1985 to women who were pregnant while they resided
22 in family housing at the base." Did I read that
23 correctly?

24 A. Yes, you did.

25 Q. Then if you go to the next paragraph,

1 "historical exposure data needed for the
2 epidemiological case-control study are limited. To
3 obtain estimates of historical exposure, ATSDR is
4 using water modeling techniques and the process of
5 historical reconstruction. These methods are used
6 to quantify concentrations of particular
7 contaminants in finished water and to compute the
8 level and duration of human exposure to
9 contaminated water." Did I read that correctly?

10 A. To contaminated drinking water.

11 Q. Contaminated drinking water. Thank
12 you.

13 A. Yes, yes.

14 Q. And so you would agree with me, and I
15 think you have before, that the Camp Lejeune water
16 modeling for Tarawa Terrace was performed to
17 provide data for this epidemiological study,
18 correct?

19 A. It was conducted to address five
20 questions, as I've put in my expert report. Number
21 one was which contaminants you needed to look at.
22 These are questions posed by the epidemiologist.
23 You know, whether it's volatile organics, I mean,
24 volatiles, pesticides. Another conclusion, it's a
25 military base, so there's a numerous one. Number

1 two, when the contaminants arrived at water-supply
2 wells, monthly mean. And then number three, what
3 was the concentration in the wells. Number four,
4 what was the concentration in the water distributed
5 throughout, in this case, Tarawa Terrace. And
6 number five was what were the range of the values.
7 And we interpret that, from a modeling stance, is
8 some type of sensitivity or uncertainty analyses.

9 Those were -- those -- those were
10 always from -- I guess when we first had our first
11 kickoff meeting with the Marine Corps and Navy and
12 all of that in October of 2003, that's what we
13 presented to them.

14 Q. And that was in support of this
15 epidemiological study that was --

16 A. Yes, it was in support of.

17 Q. Of the epi study, correct?

18 A. Yes.

19 Q. Okay. And if you turn to A98.

20 A. Okay. I'm there.

21 Q. There is a -- so A98 is a page of a
22 question and answer section of Chapter A, Tarawa
23 Terrace report, which is identified as Appendix A3.
24 The question is "ATSDR's historical reconstruction
25 analysis documents that Tarawa Terrace drinking

1 water was contaminated with PCE that exceeded the
2 MCL" --

3 A. I'm not -- I'm not following where you
4 are. You said you were on A96?

5 Q. A98.

6 A. A98. And the --

7 Q. The last question --

8 A. Oh, okay. Okay. Okay.

9 Q. -- is about the results of the model,
10 "what does this mean in terms of my family's
11 health?"

12 A. Right.

13 Q. The response is "ATSDR's exposure
14 assessment cannot be used to determine whether you
15 or your family suffer -- suffered any health
16 effects as a result of past exposure to PCE
17 contaminated drinking water at Camp Lejeune",
18 correct?

19 A. That's what it says there, yes.

20 Q. And you -- your -- in the chart that we
21 looked at earlier, you're the -- the primary author
22 of Chapter A, correct?

23 A. Yes.

24 Q. Okay. And so you wrote these words,
25 correct?

1 A. I wrote these -- this section -- let me
2 go back -- the questions and answers, okay. When I
3 was at ATSDR they required you, if you conducted a
4 technical analyses modeling or whether it was epi,
5 whatever, to provide the public with a layperson's
6 understanding, okay? So I drafted these. They
7 were reworded by the Office of Communications and
8 then sent back down to me to see if I agreed with
9 their edits, which there were many. And then they
10 were published as that appendix.

11 Q. Okay. And you're the primary author?
12 You're listed first?

13 A. Yes.

14 Q. And you would stand by what's in this
15 report today, correct?

16 A. Yes.

17 Q. Okay. Now, if you would take a look at
18 Exhibit 10, which is Chapter A for Hadnot Point.

19 A. Okay. I've got a copy here. Okay.
20 Here we go. Okay. Yes, it's unmarked.

21 Q. Okay. If we turn to page three again,
22 foreword, Roman numeral three.

23 A. Okay.

24 Q. And again. There it says "ATSDR is
25 conducting epidemiological studies to evaluate the

1 potential health effects from exposures to volatile
2 organic compounds such as PCE, TCE, and benzene in
3 drinking finished water at U.S. Marine Corps Base,
4 Camp Lejeune, North Carolina." Did I read that
5 correctly?

6 A. Yes.

7 Q. Okay. "Historical exposure data needed
8 for the epidemiological studies are limited. To
9 obtain estimates of historical exposures, ATSDR is
10 using water modeling techniques in the process of
11 historical reconstruction to quantify
12 concentrations of particular contaminants in
13 finished water and to compute the level of duration
14 of human exposure to contaminated water." Did I --
15 "drinking water." Did I read that correctly?

16 A. That is correct.

17 Q. Okay. And you're also the principal
18 author of Chapter A for Hadnot Point/Holcomb
19 Boulevard, correct?

20 A. That is correct.

21 Q. Okay. And these are your words,
22 correct?

23 A. Yes.

24 Q. Okay. And so again, the -- the -- the
25 model for Hadnot Point and Holcomb Boulevard were

1 -- was done in support of an epidemiological study,
2 correct?

3 MR. DEAN: Object to the form of the
4 question. Asked and answered, too.

5 THE WITNESS: It was done to address
6 the five objectives or questions that the
7 epidemiologists asked us to -- to address.

8 BY MR. ANWAR:

9 Q. Okay. In support of the
10 epidemiological studies, correct?

11 MR. DEAN: Object to the form of the
12 question. I'll let him answer it one more time.
13 The same thing happened recently in another depo.

14 MR. ANWAR: Please --

15 MR. DEAN: You keep asking the same
16 question.

17 MR. ANWAR: If we need to get Judge
18 Jones on -- I'm going to ask you to stop making
19 speaking objections and coaching the witness.

20 BY MR. ANWAR:

21 Q. Doctor, it's a yes-or-no question. The
22 question is --

23 A. Well, no, it's not because you're
24 asking me about what the epidemiologists did. And
25 what I can tell you is I'm not an epidemiologist.

1 I don't know how they used the information, but I
2 do know that they asked us to address five
3 objectives. And one of the objectives was to
4 provide monthly mean concentrations in drinking
5 water that was delivered to residents, in this case
6 it would be Hadnot Point/Holcomb Boulevard, and
7 also express some range of confidence.

8 Q. And it was for the epidemiological
9 studies? That's what it says here.

10 MR. DEAN: Object to the form of the
11 question. The document speaks for itself.

12 THE WITNESS: That's what it says in --
13 in the report, but I would like to be clear that I
14 am not an epidemiologist, so how it's being used
15 from once we provided -- we provided -- all we
16 provided were the monthly mean concentrations.

17 BY MR. ANWAR:

18 Q. You're not an epidemiologist, but you
19 felt comfortable serving as a primary author in
20 this report that says that, right?

21 A. I felt confident because these were
22 water modeling reports and water modeling analyses,
23 yes.

24 Q. Okay. Let's go to page A182.

25 A. Okay. Okay.

1 Q. And this is Appendix A-9, another Q and
2 A section --

3 A. Yes.

4 Q. -- for the Hadnot Point and Holcomb
5 Boulevard report, correct?

6 A. That is correct.

7 Q. And per the modeling results -- in
8 terms of the modeling results, "what does this mean
9 in terms of my family's health." It again states,
10 "ATSDR's exposure estimates cannot be used alone to
11 determine whether you or your family suffered any
12 health effects as a result of past exposure to TCE
13 contaminated drinking water at U.S. Marine Corps
14 Base Camp Lejeune." Did I read that correctly?

15 A. Yes, you did.

16 Q. You have both Chapter As in front of
17 you?

18 A. Yes.

19 Q. And for the Tarawa Terrace Chapter A
20 and the Hadnot Point/Holcomb Boulevard Chapter A --

21 A. Excuse me, the mike fell off.

22 Q. Oh, no problem.

23 A. Okay. Am I okay? Okay. Sorry.

24 Q. No, it's okay. In either of the two
25 Chapter A reports for the Tarawa Terrace analysis

1 or the Hadnot Point/Holcomb Boulevard analysis, can
2 you point me to any statement in, I guess, Chapter
3 A or any of the reports that the models were
4 intended to be used for exposure determinations in
5 specific individuals?

6 MR. DEAN: Object to the form of the
7 question.

8 THE WITNESS: The purpose of these
9 reports were to document model analyses, data,
10 calibrations, to provide epidemiologists with mean
11 monthly concentrations. How they intended to use
12 it, their epidemiological studies, or how anyone
13 else intended to use it is -- does not disqualify
14 the model and is not a model limitation. The text
15 that you have read both in Chapter -- Appendices
16 Chapter A and that, that is a statement of agency
17 policy because ATSDR's a public health agency and
18 they do not conduct, to my knowledge, at least when
19 I was there, individual analyses.

20 BY MR. ANWAR:

21 Q. And so --

22 A. Right? So that's a statement that --
23 but what people can do, what anyone else wants to
24 do with -- with these models -- we had the same
25 situation when we did Dover Township. In fact, we

1 had consultants call ATSDR and wanted to know,
2 well, can you estimate for us what our exposure was
3 at, you know, 123 Main Street -- I'm making that
4 up.

5 Q. So I think -- go ahead.

6 MR. DEAN: Let him finish his answer.

7 BY MR. ANWAR:

8 Q. I think the --

9 A. The answer -- so -- and the answer was
10 from an agency policy standpoint, no.

11 Q. No, none of the reports say that the
12 models were intended or should be used to determine
13 exposure to contaminated water in specific
14 individuals, correct?

15 MR. DEAN: Object to the form of the
16 question. Can we go off the record and have you
17 step out of the room, please, sir.

18 THE WITNESS: Sure.

19 MR. DEAN: Thank you.

20 THE VIDEOGRAPHER: Okay. Going off
21 record. The time is 12:14 p.m.

22 (Off the record.)

23 THE VIDEOGRAPHER: We're going back on
24 record. The time is 12:16 p.m.

25 BY MR. ANWAR:

1 Q. We are back on the record, Mr. Maslia.
2 In order to expedite things a little bit, I'm going
3 to ask you this question. It's going to be similar
4 to at least the prior question, but it is a
5 different question, for the record.

6 In any of the ATSDR modeling reports
7 for Tarawa Terrace, Hadnot Point or Holcomb
8 Boulevard, any of the expert panel summaries that
9 you put together, any of the transcripts from the
10 expert panels, 2005 and 2009, can you point me to a
11 single statement from any of those experts at the
12 time or in any of your reports, the numerous
13 voluminous reports, stating that the results of the
14 models are sufficiently reliable and accurate to be
15 used for exposure determinations in specific
16 individuals?

17 MR. DEAN: Object to the form of the
18 question.

19 THE WITNESS: We express in numerous
20 places that they are reliable, acceptable. Again,
21 we were not asked or -- nor were we ever asked to
22 apply them to individuals.

23 BY MR. ANWAR:

24 Q. Okay. Let's -- I'm going to show you
25 another exhibit.

1 (DFT. EXHIBIT 11, Appendix 15
2 Bates-stamped CLJA_Healtheffects-0000061127 through
3 0000061136, was marked for identification.)

4 THE WITNESS: Okay.

5 BY MR. ANWAR:

6 Q. I'm going to represent to you -- do you
7 recognize this document -- I've handed you what
8 I've marked as Exhibit 11 -- Mr. Maslia?

9 A. It says Appendix I-5. Let me just find
10 -- well, that's not it. Chapter I. Oh, okay.
11 Okay. Yes, that's the sensitivity -- that's the
12 Tarawa Terrace Chapter I report.

13 Q. Okay. This is an appendix to the
14 Tarawa Terrace Chapter I report, correct?

15 A. Yes.

16 Q. Okay. And there at the -- the second
17 paragraph in the appendix is a disclaimer, right?

18 A. I don't recall putting that there, but
19 -- can I look at my full chapter on it?

20 Q. Sure.

21 A. It's not on my Chapter I.

22 Q. Yeah. And that's one of my questions
23 to you. It's on ATSDR's website currently and it's
24 been produced in the litigation. It is attached as
25 part of a table to Chapter I, but not directly

1 included in the reports. And on the table we
2 discussed earlier, you're the primary author of
3 Chapter I, correct?

4 A. Yes.

5 Q. Okay.

6 MR. DEAN: Let me object to the form of
7 the question because I think the witness just said
8 it was not attached to his -- or you may have said,
9 I misunderstood, that this document Appendix I-15
10 is not a part of the report that was released, but
11 is now on the website; is that what you said?

12 MR. ANWAR: It's available on the
13 website.

14 THE WITNESS: I don't know anything
15 about that. When I left ATSDR, the only things on
16 the website were the published reports in 2017. So
17 no, I have never seen that disclaimer.

18 BY MR. ANWAR:

19 Q. Right. Let's -- let's read through the
20 disclaimer together.

21 A. Okay.

22 Q. It starts "the water modeling analysis
23 results presented herein are provided as a service
24 to the public for informational purposes. All
25 analyses and computer simulation results have been

1 reviewed for accuracy and completeness based on
2 available information and current modeling
3 assumptions."

4 A. It says "all data, analyses, and
5 computer-simulations."

6 Q. Okay. "All data, analyses and
7 computer-simulation results have been reviewed for
8 accuracy and completeness based on available
9 information and current modeling assumptions." Did
10 I read that correctly?

11 A. Yes.

12 Q. Then it goes on to say "the results,
13 however, may not reflect the actual exposure of
14 specific individuals to contaminants in the water
15 system." Did I read that correctly?

16 A. Yes.

17 Q. "In addition, more updated information,
18 if and when obtained, may change interpretations
19 presented herein. For details pertaining to
20 assumptions and limitations, the public should
21 refer to the aforementioned reference list above."
22 Did I read all of that correctly?

23 A. Yes.

24 Q. I most wanted -- most importantly I
25 wanted to focus on -- it states, "the results,

1 however, may not reflect the actual exposure of
2 specific individuals to contaminants in the water
3 system." Did I read that correctly?

4 MR. DEAN: Well, you can answer that.
5 I don't have an objection to that question.

6 THE WITNESS: Okay. Yes, you read that
7 correctly.

8 BY MR. ANWAR:

9 Q. And is it your testimony that you've
10 never seen this before?

11 A. No, it is my testimony I have never
12 seen this before.

13 Q. Were you involved in any way in
14 drafting it?

15 A. Not that I recall.

16 MR. DEAN: Object to the form of the
17 question. He just told you he didn't know anything
18 about it.

19 THE WITNESS: I don't know when it went
20 on the website. The last time I checked, which was
21 not recently, maybe two years ago or whatever, I
22 don't recall seeing it.

23 BY MR. ANWAR:

24 Q. Do you know why this disclaimer is
25 included as part of an appendix in Chapter I and

1 not in Chapter A?

2 MR. DEAN: Object to the form of the
3 question. Asked and answered.

4 THE WITNESS: It's not in -- in the
5 published report, okay? It's -- so I don't know
6 why or who put the disclaimer there or when it went
7 on there. As I said, to my best knowledge, when I
8 left in -- or retired in December of 2017, the only
9 thing on the website were these complete reports.
10 And I would not -- I don't understand why they
11 would pull just this out and put it like that on
12 the website. That may -- again, somebody at ATSDR
13 must have made a decision, but I was not involved
14 in that, nor was this ever -- the reference
15 citation is correct, but the disclaimer I've never
16 seen.

17 BY MR. ANWAR:

18 Q. Okay.

19 MR. BELL: At a good stop -- good point
20 for a break or not?

21 MR. ANWAR: I have a little bit more
22 questioning and then we can take a lunch break.

23 MR. BELL: Yeah, the chef out there
24 won't ring the bell for the employees until we go
25 get our food because y'all are the guests of the

1 day. I'll leave it up to you.

2 MR. DEAN: Well, give him five more
3 minutes if that's okay.

4 MR. BELL: No problem.

5 (DFT. EXHIBIT 12, Analyses of
6 Groundwater Flow, Contaminant Fate and Transport,
7 and Distribution of Drinking Water at Tarawa
8 Terrace and Vicinity, U.S. Marine Corps Base Camp
9 Lejeune, North Carolina: Historical Reconstruction
10 and Present-Day Conditions Disclaimer Bates-stamped
11 CLJA_Watermodeling_01-0000938451, was marked for
12 identification.)

13 BY MR. ANWAR:

14 Q. Okay. I am handing you what I'm
15 marking as Exhibit 12.

16 A. Okay.

17 Q. Exhibit 12 is a redline of the
18 disclaimer that we just looked at.

19 A. Okay.

20 Q. Would you agree with that?

21 MR. DEAN: Object to the form of the
22 question.

23 THE WITNESS: It looks like a big
24 difference to me, redlined.

25 BY MR. ANWAR:

1 Q. It's been redlined, correct?

2 A. Well, I know. I'm -- it's...

3 Q. And so this is a redlined version
4 reflecting changes that were made to, I guess, the
5 original disclaimer -- well, let me -- let me reask
6 that question.

7 This is -- so the redlined language in
8 here is what made it into the final disclaimer that
9 we just looked at in Exhibit 11, correct?

10 MR. DEAN: Object to the form of the
11 question.

12 THE WITNESS: No, that's the wrong
13 sign. There's differences here. For example --
14 I'll just give a quick -- it says "the documents,
15 graphs, and water modeling analyses." It says the
16 water modeling analyses.

17 BY MR. ANWAR:

18 Q. I've got you. Okay.

19 A. Okay.

20 Q. Have you seen this before?

21 A. I don't recall seeing it.

22 Q. Okay. I will represent to you that the
23 meta analysis indicates that ATSDR is a custodian
24 and you're the author.

25 A. Okay.

1 Q. And it's dated May 23rd, 2007. Do you
2 recall this document?

3 MR. DEAN: I -- object to the form of
4 the question, not that we don't accept your
5 representation, and asked and answered.

6 THE WITNESS: This seems to me to be
7 two different documents because this, the one that
8 you handed me, Exhibit 11, okay, the appendix stuff
9 is from the Chapter I, not -- not the cover, not
10 the cover page. The reference is correct, but not
11 that. If you're saying -- and Chapter I probably
12 came out in 2009. I can take a look at the date.
13 February 2009. Okay.

14 BY MR. ANWAR:

15 Q. Do you remember --

16 A. The fact that it may have been in under
17 my ATSDR land or wherever you obtained it from, I
18 don't know how -- how these documents are obtained
19 by DOJ. It could have been sent as an e-mail
20 attachment or Office of Communication or even an
21 epidemiologist, Office of the Director, anybody
22 saying this is what we want to use, but, whatever,
23 I -- you know, honestly do not remember these
24 disclaimers.

25 Q. Okay. It is attached to an e-mail and

1 I will pull that e-mail during the break. We can
2 talk through that e-mail.

3 A. Okay.

4 Q. The one that you're -- you're included
5 on.

6 A. Thank you.

7 MR. ANWAR: Let's take a break for
8 lunch and --

9 MR. DEAN: 45?

10 MR. ANWAR: That's fine.

11 THE VIDEOGRAPHER: Okay. We're going
12 off record. The time is 12:29 p.m.

13 (A luncheon recess transpired.)

14 THE VIDEOGRAPHER: We're going back on
15 record. The time is 1:24 p.m.

16 BY MR. ANWAR:

17 Q. Good afternoon, Mr. Maslia. We are
18 back on the record from a lunch break. Are you
19 okay to continue?

20 A. Yes, I am.

21 Q. Okay. Did you speak with your -- with
22 the counsel about your testimony during the break?

23 A. No, I did not.

24 Q. Okay. Thank you. Before we went on
25 the lunch break, we were discussing what I had

1 marked as Exhibit 12, which is a redlined version
2 of Exhibit 11, Exhibit 11 being a disclaimer and
3 Exhibit 12 being the redline of that disclaimer.

4 A. Okay.

5 Q. I'm going to show you another document
6 that I'm marking as Exhibit 13.

7 (DFT. EXHIBIT 13, e-mail correspondence
8 Bates-stamped CLJA_ATSDR_BOVE-0000157167 through
9 0000157170, was marked for identification.)

10 BY MR. ANWAR:

11 Q. I will represent to you Exhibit 13 is
12 an e-mail exchange from 2007 with you and Deb Tress
13 from ATSDR and Frank Bove from ATSDR. And the
14 e-mail includes an attachment with -- which is a
15 redline of the disclaimer that we were discussing
16 before the break. Take -- take a minute to look at
17 it, but would you agree with that?

18 A. Agree that this is an e-mail about
19 this -- yes.

20 Q. Okay. And so if we start at the
21 beginning of the chain, it looks like you sent an
22 e-mail on May 23rd, 2007 to Deborah Tress and the
23 subject is disclaimer for website. And in it you
24 write, "Deborah, I need a disclaimer that will come
25 up when a person enters the Camp Lejeune water

1 modeling website. Here's my attempt. Can you
2 please review and provide correct legal verbiage?
3 Thanks, Morris." Did I read that correctly?

4 A. Yes, yes.

5 Q. What -- what water modeling website are
6 you referring to?

7 A. Thinking back to 2007, 15 years ago or
8 whatever, I'm looking at the date. It's May 23rd.
9 The -- neither the executive summary or the Chapter
10 A report had come out yet because they were
11 June 2007, is when they came out. And the only
12 thing I can think of is someone above me, my
13 supervisor or the division, were thinking that just
14 like with other ATSDR documents, they wanted to put
15 results on the website, but they wanted a
16 disclaimer, an agency policy-type -- type
17 disclaimer. That's the only thing I can, I mean,
18 recall this many years back, okay?

19 Q. Okay. And I think this came up in your
20 2010 deposition. I realize that's now 15 years
21 ago.

22 A. Okay.

23 Q. But at one point, did the ATSDR website
24 contain a page or have a page that allowed an
25 individual to go in and enter sort of when they

1 were at Camp Lejeune and it produced numbers from
2 the model?

3 A. Yes.

4 Q. Okay. Can you tell me about that?

5 A. Well, as part of our Tarawa Terrace
6 analyses -- at that time it was just Tarawa
7 Terrace. And, of course, ATSDR is focused on
8 providing information to the public on their
9 health, so we requested -- we were working with the
10 U.S. Geological Survey. They had some web
11 developer guys, so we requested an app that someone
12 who resided at Lejeune or someone who didn't reside
13 at Lejeune could put in dates, dates of service,
14 and get an estimate, a quantitative estimate of
15 exposure -- when I say exposures, concentrations of
16 PCE.

17 Q. Okay.

18 A. Okay. And so the web application did
19 go on the website. I'm trying to figure out how --
20 I think you showed me -- it was with this table,
21 because that was Chapter I. That was the last
22 chapter being -- I'm not saying we didn't have the
23 numbers, but anyway, and at some point after it
24 went on the website, I know I got a call and I'm
25 sure my supervisor or the agency got a call from

1 the Department of Navy that they were not pleased
2 with it at all.

3 Q. The website itself?

4 A. You have to pull it down, yes.

5 Q. Okay.

6 A. Pull the application down off your
7 website.

8 Q. What do you recall about the
9 conversation -- about the call with the Department
10 of the Navy?

11 A. Only that it gave quantitative
12 estimates of mean concentrations, and my point --
13 it's the team's point -- was that it's contained in
14 the report and it was just an easier way to present
15 if someone didn't want to read the entire report to
16 do it, and that's all I remember, is that there was
17 some conversations with the Department of Navy.
18 And then our web guys said there was something
19 about security or whatever and the web -- that
20 application never got put back on -- on the web.
21 So my assumption is the agency just wanted to go
22 with tabular values right out of the reports.

23 Q. Okay. We'll get back to the website.

24 A. Okay.

25 Q. I wanted to focus on the e-mail

1 exchange and the -- the redline disclaimer --

2 A. Okay.

3 Q. -- that was attached. So it's -- based
4 on this first -- the first thread on the chain, it
5 sounds like you attempted to draft the disclaimer
6 and you sent it to Deborah Tress, correct?

7 MR. DEAN: Object to the form of the
8 question. Mischaracterizes the document.

9 THE WITNESS: I don't know. If I
10 recall, I was probably asked to produce the table,
11 okay, here because someone wanted it up on the
12 website, okay? And then someone probably said,
13 well, we need to have a disclaimer, okay? I don't
14 know who. I don't know who, but -- and so I
15 attempted to draft a disclaimer not being an
16 attorney, okay --

17 Q. Okay.

18 A. -- or agency policy person.

19 Q. Okay. And so the next exchange is an
20 e-mail from Deb Tress responding to you saying, "so
21 does the website help them estimate their own
22 exposure to the contaminated water?" Did I read
23 that correctly?

24 A. Yes.

25 Q. And then you respond to that further up

1 in the chain. You say, "yes, but they cannot
2 modify our numbers. It just provides results of
3 modeling based on the dates they enter to a website
4 and they can also download a graph and table as a
5 PDF." Did I read that correctly?

6 A. Yes, that's what I just said about
7 getting the tables from the report, okay?

8 Q. And now going further up on the chain
9 to the first page of the exhibit, Deb Tress's
10 response to you on May 23, 2007 says, "how about
11 this? I'm not totally clear how this is being
12 presented, so please edit as needed. I'm not that"
13 -- it says considered, but I think I might be
14 concerned "with liability by ATSDR for the use of
15 the tool, so I took out that type of language."

16 A. Okay.

17 Q. "Thanks". Did I read that correctly?

18 A. Yes.

19 Q. Okay. And then you forward that on to
20 Frank Bove, correct?

21 A. That is correct.

22 Q. And that's the first e-mail on the
23 page, the top of the chain. It says, "Frank,
24 attached is a disclaimer that will appear on the
25 water modeling website. It's been edited by Deb

1 Tress. Let me know if you agree to it and then I
2 will send to our web gurus." Did I read that
3 correctly?

4 A. That is correct.

5 Q. Okay. So earlier you indicated you --
6 you at least couldn't recall having seen this
7 disclaimer before?

8 A. That is correct, yes.

9 Q. But based on this e-mail -- this is
10 your e-mail address and you would have received the
11 disclaimer, correct?

12 A. Yes, yes.

13 Q. Okay.

14 A. That's -- I mean, as I said, it was a
15 lot of things going on around May 2007 with the
16 prep for the subcommittee hearing and trying to get
17 reports approved by the Office of Science and the
18 Office of Director and stuff and...

19 MR. DEAN: So for the record, so we
20 just clarify that Bates stamp numbers ends in one
21 -- Bove 167 and goes through 170. I haven't gone
22 to look, but I presume the document attached is
23 what you're saying is the document that is attached
24 that -- that he sent to Frank Bove?

25 MR. ANWAR: The last document on this

1 chain --

2 MR. DEAN: 170.

3 MR. ANWAR: -- 170 is the attachment to
4 that e-mail thread.

5 MR. DEAN: Okay. Thank you.

6 BY MR. ANWAR:

7 Q. You didn't recall it earlier, but you
8 would have received it and you were involved in the
9 drafting process, correct?

10 A. It's got my e-mail address on it and,
11 again, it looks like Office of General Counsel,
12 Deborah Tress, edited it, okay?

13 Q. Okay.

14 A. And probably -- and sent it back to me
15 and then I -- I didn't accept or reject the
16 redline. It's blue on here, but that's fine. I
17 just sent it on, as you can see by the title of the
18 attachment, is disclaimer underscore MLMOGC
19 reviewed.

20 Q. Okay.

21 A. Okay. So that's -- I forwarded it on
22 to Dr. Bove.

23 Q. Okay. And Exhibit 11, which we
24 discussed before the break, was the Chapter I,
25 Appendix I-5 document. Do you recall that?

1 A. It's the table from Appendix I-5.

2 Q. Yes.

3 A. Again, the final version of the report
4 -- the numbers are the same, but the final version
5 of the complete report was not published until
6 February of 2009, so this must have been -- I
7 can -- I can only surmise that once this was
8 published in 2009, they went back and replaced the
9 original tables. Same numbers, but original
10 tables, okay? We had completed the Monte Carlo
11 simulation, but we had not had the Chapter I report
12 approved, okay? So it's, you know, I guess I'm
13 confused as to -- because the e-mail is dated 2007.

14 Q. Yeah.

15 A. The report is not -- typically we would
16 get a report approved and then if we wanted to pull
17 a table or a PDF or a figure or whatever from it,
18 we would do it that way. So it's the same table.
19 I've checked the numbers, or spot-checked the
20 numbers, and it's the same -- same table. So maybe
21 it was -- the report wasn't drafted when we went
22 ahead and put that, you know, forwarded that to
23 Dr. Bove.

24 Q. Do you have any idea why the disclaimer
25 didn't make it into Chapter I itself, the full

1 report?

2 A. No, that's -- that's a mystery to me.
3 I will say to give credit to ATSDR leadership and
4 management, they did believe in the peer review and
5 expert review panels that we put together, and
6 every report went through at least two peer
7 reviews, one internal and one external, and so I
8 think that's why none of the reports really -- with
9 the -- we'll get to Hadnot Point in a minute, but
10 none of the reports contained any disclaimers like
11 -- like you're showing here. So I don't know what
12 prompted the disclaimer, but...

13 Q. Well, I will -- I will represent to you
14 that -- and you're, obviously, welcome to go look
15 for it yourself. The Appendix I disclaimer is
16 still included on the website as part --

17 A. On the website.

18 Q. -- of the table -- as part of a table
19 document. In the disclaimer where it says "the
20 results, however, may not reflect the actual
21 exposure of specific individuals to contaminants in
22 the water system" --

23 A. Are you referring to the redline or
24 blue line -- I mean, blue line or redline?

25 Q. On Exhibit 11.

1 A. Okay. I'm sorry. Okay. Okay. Go
2 ahead.

3 Q. The final version that's on the website
4 now.

5 A. Okay.

6 Q. In the middle of the disclaimer, it
7 says, "the results, however, may not reflect the
8 actual exposure of specific individuals to
9 contaminants in the water system." Do you agree
10 with that statement?

11 MR. DEAN: Object to the form of the
12 question.

13 THE WITNESS: I would say it has to say
14 that because what we're presenting is a Monte Carlo
15 simulation result, so you've got the calibrated
16 value, the probability at 2.5 percent, the
17 probability at 50 percent, and the probability at
18 97.5 percent. So your exposure may be someplace in
19 the middle there in between those ranges. So from
20 that standpoint, that's a correct statement
21 because, you know, a person's individual exposure
22 could be within that range anywhere.

23 Q. Okay.

24 A. And can I just qualify something?

25 Q. Go ahead.

1 A. When I use the words from my standpoint
2 of exposure, I'm talking about the estimated value
3 of the contaminated drinking water. I'm not
4 referring to exposure like ingestion, inhalation,
5 thermal exposure, okay? I'm just -- so I'm using
6 the word exposure in that sense.

7 Q. You're using exposure in -- in the
8 sense of drinking water?

9 A. Drinking water. Drinking water. But
10 the definition of exposure -- exposure assessment
11 is you have to really look at which pathway or
12 multiple pathways, okay, someone may -- may have
13 been or may be exposed.

14 Q. Understood. Let's turn back to your
15 rebuttal report, which is Exhibit 6.

16 A. This is 5.

17 Q. I know, a lot of documents.

18 A. Four. I've got a copy here, if that's
19 okay.

20 MR. DEAN: Yeah.

21 THE WITNESS: The tabs are just
22 typographical edits. Not technical, typographical.

23 BY MR. ANWAR:

24 Q. That's your version of --

25 A. Yeah, that's my version of my response

1 report.

2 Q. Okay. Your rebuttal report?

3 A. Yes.

4 Q. Which is -- I've marked as Exhibit 6.

5 A. Yeah, it's here someplace.

6 Q. Do you have any, like, markings or
7 writing in that?

8 A. I only corrected -- due to the
9 Maslia-genetic OCD, you know, like, I referenced
10 date is incorrect, but nothing technical. No
11 technical changes or technical reinterpretations on
12 here.

13 Q. Okay. Just like a typo?

14 A. Yes, yes, yes.

15 Q. Okay. Let's -- let's turn to page 27.

16 A. Okay. Okay.

17 Q. Page 27, at the bottom of it, contains
18 a section in your rebuttal report, Section 4.3,
19 excuse me, volatilization of VOCs during water
20 treatment process, correct?

21 A. Yes.

22 Q. And this is a response to the opinions
23 of DOJ's expert Remy Hennet about VOC losses that
24 would have occurred during the water treatment and
25 distribution process at Tarawa Terrace and Hadnot

1 Point, correct?

2 A. It would have occurred only during the
3 water treatment process. It's not possible for it
4 to occur during the distribution because you're
5 dealing with closed pressurized pipes.

6 Q. Okay. You would agree during the water
7 treatment process, correct?

8 A. Well, that's -- yeah, that's -- yes.

9 Q. So I don't want to necessarily read
10 this line by line.

11 A. Okay.

12 Q. Unless you want to direct me to a
13 specific portion, but I'll start more generally.

14 A. Okay.

15 Q. For much of this it appears that you
16 are restating Dr. David Sabatini's opinion on how
17 VOC losses are calculated and the extent of the VOC
18 losses that would have occurred; is that right?

19 A. That is correct.

20 Q. Okay. And do you defer to Mr. --
21 Dr. Sabatini on those opinions?

22 A. Yes, the calculations that he did, the
23 interpretations that he did, I defer to him.
24 That's his area of expertise.

25 Q. Okay. You're not doing any independent

1 calculations on VOC losses, correct?

2 A. No, I'm not.

3 Q. And you're not doing any independent
4 interpretation of those calculations of VOC losses,
5 correct?

6 A. I'm doing comparisons.

7 Q. You're comparing Dr. Hennet's opinion
8 with Dr. Sabatini's opinion, correct?

9 A. And -- and the Marine Corps'
10 consultant, AH Environmental.

11 Q. Okay.

12 A. And our experts who served on the
13 expert panels.

14 Q. Determining VOC losses or calculating
15 them, that's not your expertise, correct?

16 A. That is correct.

17 Q. Okay. So turning to page 30 in your
18 report.

19 A. Okay.

20 Q. Actually, it might be 29. Sorry about
21 that.

22 A. Okay.

23 Q. Okay. I misspoke again. I'm sorry.
24 It's page 31.

25 A. 31?

1 Q. Yeah.

2 A. Okay. I'm there.

3 Q. Okay. So in the -- in the second
4 paragraph there, the first large paragraph, you go
5 on to discuss -- it says, "additionally, in
6 contrast to Remy Hennet's contention that ATSDR
7 ignored or did not account for VOC losses during
8 storage treatment and distribution"...

9 A. I'm there. I'm following.

10 Q. "This issue, including the results of
11 the AH Environmental Consultants report, was
12 discussed in detail with the expert panels convened
13 by ATSDR in 2005 and 2009." Did I read that
14 correctly?

15 A. Yes, yes, you did.

16 Q. Okay. And a little further down it
17 says, "excerpts from the verbatim transcript are
18 provided in Appendix A", and you're talking about
19 the expert panel. "The consensus was there was
20 negligible volatilization, at most 10 percent, from
21 the spiractors." And -- so -- and then you quote,
22 "so although we said it's probably negligible and I
23 agree with Tom's number here, at 90 percent what's
24 going in is coming out on the other end." Did I
25 read that correctly?

1 A. Yes, and then it references Appendix A
2 at the end of the sentence.

3 Q. Correct.

4 A. Okay. To be clear, that's not my
5 quotation.

6 Q. Correct. That's from the expert panel,
7 correct?

8 A. Yes.

9 Q. And that's Dr. Pommerenk?

10 A. Yes.

11 Q. Okay. And the last sentence there is,
12 "in light of the conclusions of AH Environmental
13 Consultants, 2004, and the recommendations of its
14 expert panels, ATSDR made the decision to consider
15 any potential VOC losses from storage, treatment
16 and distribution as negligible." Did I read that
17 correctly?

18 A. Yes.

19 Q. And I believe you reference in it in
20 your report, but I'll pull out the actual document
21 as well.

22 A. In which report? The expert report?

23 Q. It's in your expert report, but let me
24 -- I'm going to pull out the -- the AHE report for
25 you. Hang on a second.

1 (DFT. EXHIBIT 14, ATSDR Support
2 Estimation of VOC Removal report from AH
3 Environmental Consultants Inc., Bates-stamped
4 CLJA_Watermodeling_010000071446 through 0000071512,
5 was marked for identification.)

6 BY MR. ANWAR:

7 Q. I'm handing you what I'm marking as
8 Exhibit 14. Exhibit 14 is the 2004 environmental
9 -- or AH Environmental Consultants report, correct?

10 A. That is correct.

11 Q. It's the one that you reference in your
12 rebuttal report, correct?

13 A. Yes.

14 Q. If you turn to page 4-4.

15 A. Which page? Oh, report page four?

16 Q. Report page 4-4. Thank you.

17 A. Okay.

18 Q. At the top of the page there it states,
19 "based on these observations, there is some
20 uncertainty in removal estimates from the effluent
21 pipes. Additional uncertainties are introduced by
22 varying head losses in the pipes caused by calcium
23 carbonate scale built-up and manual clearing --
24 cleaning. However, it is estimated that PCE and
25 TCE removals due to aeration at the spiractor

1 effluent pipes are likely to be no larger than
2 15 percent." Did I -- Did I read that correctly?

3 A. Yes, yes.

4 Q. So AHE's report determined up to or no
5 larger than 15 percent, correct?

6 MR. DEAN: Object to the form of the
7 question.

8 BY MR. ANWAR:

9 Q. And let me -- let me repeat the
10 question. This AHE report determined that PCE and
11 TCE losses or VOC loss due to aeration at the
12 spiractor effluent pipes are likely to be no larger
13 than -- no, to be -- than 15 percent?

14 A. That's what it states.

15 Q. Okay.

16 A. That's what the report states.

17 Q. And looking back at page 31 of your
18 rebuttal report, that last -- that paragraph we
19 were just looking at, the last sentence is, "so in
20 light of the conclusions of the AHE consultants,
21 2004, and the recommendations of the expert panels,
22 ATSDR made the decision to consider any potential
23 VOC losses from storage, treatment, and
24 distribution as negligible." Did I read that
25 correctly?

1 A. Yes.

2 Q. Whether it's 10 percent VOC losses or
3 up to 15 percent VOC losses, is it your opinion
4 that 10 or 15 percent is negligible -- a negligible
5 percent of losses?

6 A. Yes, compared with the differences, for
7 example, in water sampling or the quality sampling,
8 the uncertainties associated with well scheduling
9 operations. And you've got to look at, you know,
10 everything, not just isolate on -- on the water
11 treatment plant, but considering everything 10
12 percent -- percent, we assumed and we were, I
13 believe, justified in assuming it was negligible,
14 okay? That is an -- the approach we took was a
15 pragmatic engineering approximation through a
16 modeling issue.

17 Q. For purposes of determining exposure in
18 an individual, is a 10 or 15 percent VOC loss --
19 would you consider that to be negligible?

20 A. You would have to speak with the
21 epidemiologist or toxicologist, okay? I couldn't
22 say on an individual level, okay?

23 (DFT. EXHIBIT 15, Analyses of
24 Groundwater Flow, Contaminant Fate and Transport,
25 and Distribution of Drinking Water at Tarawa

1 Terrace and Vicinity, U.S. Marine Corps Base Camp
2 Lejeune, North Carolina: Historical Reconstruction
3 and Present-Day Conditions Response to the
4 Department of the Navy's Letter on: Assessment of
5 ATSDR Water Modeling for Tarawa Terrace,
6 Bates-stamped CLJA_Watermodeling_01_09_0000033263
7 through 0000033326, was marked for identification.)

8 BY MR. ANWAR:

9 Q. I'm handing you what I'm marking as
10 Exhibit 15.

11 A. Okay. Response. Okay.

12 Q. And I wanted to direct your attention
13 to page six, I believe, of the report.

14 A. Okay. The pages, I don't believe, are
15 numbered.

16 Q. I think they're on the top left. Well,
17 and let me --

18 A. Can you give me a Bates number because
19 this doesn't have a report page number.

20 Q. Before I begin, let me -- let me start
21 by asking you a few questions.

22 A. Sure.

23 Q. This is the ATSDR response to the
24 Department of Navy's letter or their critiques on
25 the Tarawa Terrace modeling, correct?

1 A. That's -- yes, this is --

2 Q. And it's entitled, on the first page
3 there, response to the Department of Navy -- to the
4 Department of the Navy's letter on quote -- colon,
5 assessment of ATSDR water modeling for Tarawa
6 Terrace, correct?

7 A. That's correct.

8 Q. Okay. Did you write this response?

9 A. Again, other reports, I wrote parts of
10 it and I coordinated other people's response. I
11 may have asked them for input and if they could
12 respond to a certain section or not, but I
13 coordinated the overall report.

14 Q. Okay. So in coordinating it, similar
15 to the other reports that you oversaw and
16 coordinated, would you have reviewed and had an
17 opportunity to review the -- to comment on the
18 report?

19 A. Yes.

20 Q. And ultimately, what was decided, would
21 you have had an opportunity to sign off on the
22 report?

23 A. It would have come from me in going up
24 through the clearance process, report clearance
25 process of the agency, okay? And so I would have

1 been the one that put it into the clearance process
2 at the first stage once I was satisfied with the
3 report.

4 Q. So you would have -- you would have
5 approved it and then pushed it up the chain,
6 correct?

7 A. Yes.

8 Q. Okay.

9 A. Well, technically a report is only
10 approved by either the Office of the Director or
11 the Office of Science at CDC, okay? An author
12 cannot approve an agency report. They can submit
13 it, they can comment on it and all of that, but
14 it's only those two, Office of Director and Office
15 of Science at CDC, when I was there.

16 Q. And perhaps "approve" is a bad term
17 because it may be a term of art --

18 A. Right.

19 Q. -- within an agency, but you would have
20 had an opportunity to review, comment and sign up
21 -- sign off on it and then send it up the chain to
22 be approved, correct?

23 A. Yes, that is correct.

24 Q. Okay. So on the page with the Bates
25 ending in 33272, if you could turn there.

1 A. Yeah, yeah. 272?

2 Q. Correct.

3 A. Okay. I'm there, 33272.

4 Q. Okay. And then the page before, 33271,
5 it's a Department of Navy comment statement 7.1 and
6 it's an excerpt from their letter. It says,
7 "however, all comparisons did not fall within the
8 calibration range. At the water treatment plant,
9 12 percent of the simulated PCE concentrations
10 failed the calibration standard at the water supply
11 wells, a majority, 53 percent, of the simulated
12 concentrations fell outside the calibration
13 standard."

14 A. Correct.

15 Q. Did I read that correctly?

16 A. Yes.

17 Q. Okay. And so then ATSDR responds. And
18 if you turn the page, as part of the response on
19 the last page there it states, "to address the
20 issue of the intended use of the water modeling
21 results by the current ATSDR epidemiological study,
22 the DON, Department of Navy, should be advised that
23 a successful epidemiological study places little
24 emphasis on the actual or absolute estimate of
25 concentration and, rather, emphasizes the relative

1 level of exposure. That is, exposed individuals
2 are, in effect, ranked by exposure level and
3 maintain their rank order of exposure level
4 regardless of how far off the estimated
5 concentration is to the, quote, true measured PCE
6 concentration." Did I read that correctly?

7 A. Yes.

8 Q. Were you involved in -- did you -- did
9 you write that section?

10 A. No, I did not.

11 Q. Okay. But you reviewed it and you
12 signed off on the response before you sent it off
13 to the appropriate --

14 A. I did not. It seems to me, looking at
15 the language or the verbiage in that last
16 paragraph, that that was written by an
17 epidemiologist, and what I would have done as we
18 were preparing this report -- as I said, we had a
19 team. I may have forwarded it to the
20 epidemiologists of the study and asked them
21 specifically would they review it and care to add
22 anything to it.

23 Q. But you oversaw the response and you
24 reviewed it?

25 A. Yes.

1 Q. And you signed off and sent it up the
2 chain to be approved, correct?

3 A. That is -- that is correct.

4 Q. Okay. And so as I understand it, as
5 I'm reading this, it's -- and this is coming as
6 part of a response to a concern, so maybe you wrote
7 about -- raised about the accuracy of the model
8 based on the calibration. As far as -- it sounds
9 like for purposes of the epidemiological study that
10 was being conducted in which the modeling was
11 supporting, the absolute concentration values
12 produced by the model didn't matter; would you
13 agree with that?

14 MR. DEAN: Object to the form.

15 THE WITNESS: Well, it doesn't say
16 didn't matter. It says little emphasis is placed
17 on it.

18 BY MR. ANWAR:

19 Q. Okay.

20 A. And again, it's from -- I would
21 interpret this, because I know I did not write this
22 section, that that's -- you really need to ask an
23 epidemiologist on the epidemiological
24 interpretation of that.

25 Q. What it says is that that is

1 successful -- that the -- the intended use of the
2 water modeling results by the current
3 epidemiological study places little emphasis on the
4 actual absolute estimate of concentration and
5 rather emphasizes the relative level of exposure,
6 right?

7 A. That's what it says.

8 Q. All right. And then it says, "that is,
9 exposed individuals, in effect -- are, in effect,
10 ranked by exposure level and maintain their rank
11 order of exposure level regardless of how far off
12 the estimated concentration is to the true measured
13 PCE concentration", correct?

14 A. That's what that -- that sentence that
15 you just read says.

16 Q. Okay. So if in that context for the --
17 of the water modeling and what was happening at the
18 time, when you-all were -- so let's turn back to
19 the discussion in your rebuttal report about the
20 VOC losses --

21 A. Okay.

22 Q. -- and ATSDR's characterization of 10
23 or 15 percent of VOC losses as negligible. If
24 ATSDR was performing an epidemiological study that
25 was ranking exposure level and maintaining the rank

1 order of individuals, does it matter -- it doesn't
2 matter whether the VOC losses are 10 percent,
3 15 percent, 25 percent, does it?

4 A. It's an epidemiology question or
5 toxicology or a combination of both, okay? Again,
6 in the response, again, I can tell that's not the
7 way I write. It was written by an epidemiologist
8 in there and I just -- I'm not comfortable
9 answering an interpretation from one or the other,
10 okay?

11 Q. The point I'm getting at is that
12 whatever the concentration level, you know, we're
13 talking about is produced by the model, let's say
14 100, across the board for individuals, the same
15 amount is coming off the top for the VOC losses, so
16 10 percent, 15 percent, it doesn't change the rank
17 of the order -- the rank of individuals for
18 purposes of the epi study, right?

19 MR. DEAN: Object to the form of the
20 question.

21 THE WITNESS: Again, that's an
22 epidemiological analysis. I've never done one of
23 those. I've never ranked, okay, so I don't know
24 what assumptions they are using to put into there.
25 I know they are using the mean monthly

1 concentrations that we reconstructed, but that's as
2 far as I can go.

3 BY MR. ANWAR:

4 Q. ATSDR made the decision -- treated VOC
5 losses as negligible because the water modeling was
6 supporting an epi study, right?

7 A. No.

8 MR. DEAN: Object to the form of the
9 question.

10 THE WITNESS: One has nothing to do
11 with the other. I think we're comparing apples and
12 oranges here. The VOC potential volatilization was
13 geared towards our water modeling and taking the
14 results of the simple mixing model and then putting
15 it through the water treatment process. We did not
16 model the water treatment process and, you know,
17 distributing the -- the water to wherever,
18 locations within Camp -- Camp Lejeune.

19 If -- back up. Based on -- again, I'm
20 referring to the AH report, our experts. We had
21 one of our distribution system experts, and it was
22 our conclusion that 10 percent, 15 percent, was
23 well within engineering applications. That is
24 typically done in -- in engineering applications.
25 You go from theory -- from contaminant fate and

1 transport equation, groundwater flow, and then you
2 have to make some assumptions, okay, some
3 simplifying assumptions or pragmatic --

4 SIRI: I'm sorry. I didn't quite catch
5 that. Can you please say that again?

6 BY MR. ANWAR:

7 Q. Siri wants you to repeat it.

8 A. Okay. I didn't know someone was
9 listening, but -- and so that -- that's what our
10 focus is. Our focus was never on how the
11 epidemiology were going to interpret or use the
12 results other than that the most likely estimates
13 were mean monthly concentrations.

14 Q. When you're building a model and you're
15 -- you're starting with the conceptual model, isn't
16 part of the -- developing the conceptual model
17 understanding what the purpose and the model will
18 be used for?

19 A. No, the purpose is to get -- in terms
20 of, if we can get specific, a groundwater flow
21 model, for example, your conceptual model would be
22 how does water move through the different aquifers
23 or different layers. And contaminant transport, if
24 there's a contaminant source or sources, how do
25 those contaminants then mix or move with

1 groundwater, and then how are they mixed with the
2 different wells that may or may not intercept
3 contaminated water, and then how they're
4 distributed, okay?

5 And so your groundwater flow has
6 specific equations with some parameters that you
7 have to make assumptions on. The contaminant fate
8 and transport has equations that we have to make
9 some engineering approximations or simplifications,
10 and the treatment process we -- we said after
11 looking also at the data, the data, the sampling
12 data that was provided by whoever did the lab
13 analyses that came -- provided to us by our points
14 of contact at Camp Lejeune, but somebody did the
15 analyses, that there was very little negligible
16 indication of any kind of VOC loss from the
17 untreated, where all the raw water went in, to the
18 treated. And that's -- I put that in -- is this
19 the rebuttal report? I put that in the rebuttal
20 report. We had some sampling data that showed
21 that.

22 Q. I guess one of the things I -- and this
23 is just me, like, leveling --

24 A. Right.

25 Q. -- and not, you know, taking off the

1 lawyer hat. One of the things I sort of struggle
2 with is this idea that when the modeling was being
3 performed, that the purpose for which the model was
4 being used is somehow divorced from the decisions
5 that were made with respect to building the actual
6 model. And I'm saying candidly, like, reading the
7 e-mails, the documents --

8 A. Right.

9 Q. -- it's all over the paperwork and the
10 documents at the time that the modeling was built
11 to support the epi study. And I think -- it sounds
12 like, to me, you're saying that when you're
13 building the model, you just had no idea what they
14 were doing with the -- the model results.

15 MR. DEAN: Object to the form of the
16 question. You can answer.

17 THE WITNESS: As I said before, if you
18 look at the start of the project, the start, they
19 asked us -- they saw what we did with Toms River,
20 New Jersey and came to us and said, well, can you
21 do the same thing with Camp Lejeune, meaning
22 monthly concentrations or monthly -- yeah, monthly
23 water concentrations. And so that's where we
24 started and there were, again, the five objectives
25 that I've stated previously, and that's how we

1 designed the model, is to be able to reconstruct
2 concentrations to meet those five objectives and
3 to, you know, express some reliability, uncertainty
4 associated with them.

5 How the epidemiology side or toxicology
6 side of -- of the agency would then take those and
7 what analyses they would do, as I said, we were
8 blinded to that, okay? I could never tell you --
9 to this day, I do not know who was classified as a
10 case, who was a controlled, where they lived, what
11 -- how they served, when they served or anything
12 like that. Because in developing these -- the
13 models for historical reconstruction, they should
14 be, as I termed it, robust, meaning anyone, not
15 just the epidemiologists, anyone should be able to
16 take the results of your model and apply them as
17 they see fit given the uncertainties, the
18 limitations of modeling.

19 BY MR. ANWAR:

20 Q. Frank Bove was the epidemiologist
21 performing the studies, correct?

22 A. He was the senior epidemiologist.
23 There was also -- now it's Dr. Perri Ruckart.

24 Q. Okay.

25 A. Those are the two people I interacted

1 with.

2 Q. Dr. Bove and Dr. Ruckart, correct?

3 A. Yes.

4 Q. And if you were developing the model,
5 you were certainly communicating with Dr. Bove,
6 correct?

7 A. There were e-mails, but not -- he was
8 not questioning us and what assumptions we were
9 making. They would more communicate with us on two
10 aspects. One, there's a CAP meeting and we need an
11 update on the modeling and, two, when are we going
12 to have some final results that we can use for the
13 epi study, okay?

14 Q. Okay. You were communicating with
15 Dr. Bove when building the model, though, correct?

16 MR. DEAN: Object to the form of the
17 question.

18 THE WITNESS: When you say building,
19 are you talking about calibrating the model or
20 doing the conceptual groundwater flow model and
21 what type of code we were going to use?

22 BY MR. ANWAR:

23 Q. Any aspect of developing either of the
24 Tarawa Terrace model or the Hadnot Point/Holcomb
25 Boulevard model. During the course of it, you were

1 discussing what Dr. Bove's needs were, correct?

2 MR. DEAN: Object to the form of the
3 question. Mischaracterizes his prior testimony.

4 THE WITNESS: We communicated about
5 what results they would need, the epidemiologists
6 would need, and could we provide them. They
7 indicated that they would need, at one point,
8 trimester information. So if we could give them
9 monthly, that would -- they would be comfortable
10 with -- with monthly values.

11 BY MR. ANWAR:

12 Q. Was Dr. Bove permitted the opportunity
13 to weigh in on modeling decisions? So, for
14 instance, parameter inputs that you decided on and
15 assumptions that were made?

16 A. I may have copied him if I sent out a
17 group e-mail, if we were discussing modeling
18 things, but he would not come back and say, no, you
19 should use, you know, 100 or 30 or whatever
20 parameter. We never had those kinds of
21 discussions. He left that strictly to the water
22 modeling team.

23 Q. So turning back to your rebuttal
24 report.

25 A. Okay.

1 Q. I think it's page 31.

2 A. Okay.

3 Q. There -- actually, I may have told you
4 the wrong page again. Give me one second. Okay.
5 It's page 30, actually. I'm sorry.

6 A. Okay.

7 Q. At the top of that page it starts, "in
8 addition, Remy Hennet's assertion that" --

9 A. Wait. Page 30.

10 Q. 30 of your rebuttal.

11 A. This says rebuttal.

12 Q. It's the first full sentence.

13 A. Oh, okay. I see it. Okay.

14 Q. It states, "in addition Remy Hennet's
15 assertion that ATSDR did not account for such VOC
16 losses is incorrect." And then it goes on, "first
17 ATSDR analyzed sampling data of water from both
18 pretreatment and posttreatment." And then you list
19 in a table sampling data for the Hadnot Point water
20 treatment system?

21 A. Correct.

22 Q. And the rest of that is a discussion
23 about the sampling data from the Hadnot Point water
24 treatment system. I don't see anywhere in that
25 paragraph any discussion about Tarawa Terrace. And

1 it's true that the Tarawa Terrace model didn't
2 account for VOC losses at all, right?

3 A. No, we said they were negligible at
4 each treatment facility. It's just that at Hadnot
5 Point we actually had sampling data, okay? A pair
6 and a triplet, okay? And, for example, for
7 July 27th, 1982 for TCE, we have -- the untreated
8 water is 19 micrograms per liter and that same day
9 -- I can't say what time it was taken at, but we've
10 got treated water at 21 micrograms per liter,
11 allowing for measurement error. It appears to me
12 that there is no VOC loss and that is in sampling
13 data that -- and so, again, you can calculate using
14 equations, but the sampling data showed no VOC
15 loss.

16 Again, on here there is -- at the top
17 of page 31 it says "at the Tarawa Terrace water
18 treatment plant there's triplet measured data taken
19 on July 28th, 1982." And in this -- in this one
20 it's classified as finished, untreated, and treated
21 water. So 104 micrograms per liter finished water,
22 76 untreated, and 82 treated water, okay?

23 Q. Those --

24 A. Now, again, you have variations like
25 this in water -- water samples, but it does not

1 seem to me that there are any VOC losses.

2 Q. So we'll turn to the sampling data as
3 it relates to Hadnot Point --

4 A. Okay.

5 Q. -- because that discussion is all about
6 Hadnot Point, correct?

7 A. No, no, I just said this is Tarawa
8 Terrace. I just -- the triplet is data from Tarawa
9 Terrace. The TTWTP is our acronym for that.

10 Q. What page are you looking?

11 A. Page 31 at the top.

12 Q. Now, when you were comparing the
13 sampling data to determine no VOC losses, so for
14 both Hadnot Point and Holcomb Boulevard, did you
15 take into account whether or not the -- the wells,
16 the contaminated wells, for those two treatment
17 systems had been pumping?

18 A. We do not have information on sampling
19 data, I believe, on any of the sampling data,
20 whether the wells were pumping or not -- not
21 pumping. We may be able to make some judgments
22 based on before and after if it's at the same --
23 same -- same well, whether the well was pumping or
24 not, but we had no information on the pumping
25 status of the well, but that would not have -- you

1 would not have lost any VOCs in the well because
2 it's not that you have air space in there. The
3 well is screened down through the aquifer, okay?
4 It's completely filled with water.

5 Q. Well, you're -- you're basing the
6 conclusion at the top of page 31 as it relates to
7 Tarawa Terrace, and I think for Hadnot Point as
8 well, you're comparing finished water samples
9 versus untreated water samples, and you're reaching
10 the conclusion, it seems to me, that in comparing
11 those, just the -- the sampling results, there were
12 no VOC losses, right?

13 A. Well, the data indicate that and then
14 taking that in addition to what our expert panel
15 said, maybe 10 percent or so, that leans you
16 towards the minimum for the negligible losses
17 because I would expect if there were VOC losses,
18 and let's say 10 percent, I would expect to see
19 that in the sampling data to be reduced for the
20 sampling data from the untreated water, which is
21 probably the raw water tank where all the wells mix
22 in together, go through the treatment process, and
23 then they put it into a treated water tank either
24 elevated or underground. I would have expected to
25 see some losses.

1 Furthermore, I might add, in the period
2 January 28th through February 8th, 1984, there was
3 an eight-day period when they had to shut down the
4 Holcomb Boulevard water treatment plant. Holcomb
5 Boulevard was never served with -- did not -- the
6 treatment plant was -- never had contaminated
7 water, but when they shut down during that
8 eight-day period, the distribution system going
9 into Holcomb Boulevard received contaminated Hadnot
10 Point water. And if you just look at some of the
11 values, and I put the ranges in there. I believe
12 there's a CLW document that lists them all the way
13 from 24.1 to over 1100. So again, I'm going to ask
14 again, where are the losses?

15 Q. So for instance, for Tarawa Terrace,
16 the -- the source or the primary contaminated well
17 was TT26, right?

18 A. That -- that was the main well, yes.

19 Q. And there's statements in the reports,
20 and we'll look at them, that -- but would you agree
21 that when TT26 was pumping, the -- the contaminant
22 concentration levels were higher?

23 A. Yes.

24 Q. And when TT26 was not pumping, the
25 contaminant concentration levels decreased, and I

1 think you stated in your expert panel that -- in
2 one of the expert panels that the concentration
3 levels went down to almost zero?

4 A. Well, that's shown in our Chapter A
5 report, too. When they shut the well down for
6 maintenance, okay, so it was not pumping, the
7 concentrations at the water treatment plant went
8 down to near -- near zero, and that also is what
9 proved to us that TT26 was the driving force or the
10 driving well in that whole -- whole system.

11 Q. So the only point I'm trying to make
12 with respect to comparing finished samples from
13 finished water versus untreated water at Tarawa
14 Terrace and at Hadnot Point, I mean, simply --
15 context matters. Simply comparing samples from
16 untreated water and finished water doesn't tell you
17 whether the well was pumping, whether the
18 contaminants were increasing, whether the well --
19 whether the well had stopped pumping and the
20 contaminants were decreasing, you can't make a
21 determination on VOC losses solely by comparing a
22 finished water sample and an untreated water
23 sample?

24 MR. DEAN: Object to the form of the
25 question. Compound. Complex.

1 BY MR. ANWAR:

2 Q. You can answer.

3 A. Okay. I think you are confusing -- and
4 I don't mean that as a personal attack.

5 Q. Sure. No offense taken.

6 A. Confusing different mechanisms and
7 different aspects of the entire process of
8 delivering, obtaining water from the aquifer to the
9 delivery point, okay? The samples -- there's some
10 samples at TT26, okay, that's at the well, and that
11 -- that says nothing about -- and honestly, that
12 says nothing about the treatment process. The
13 treatment process occurs after all the wells mix in
14 in the entry to the water treatment plant, okay?

15 So if I take a sample, and let's say
16 untreated water, which will be the raw water tank,
17 okay, and I get a -- a value, a concentration, and
18 then I take a similar sample and I'm assuming they
19 are using the same testing methodology at the
20 treated end, which would be on the other side of
21 the spiractors, the other side, and I don't see
22 any -- any losses, any changes, decreases in
23 concentration, excuse me, can I -- then what I am
24 saying is it's a good assumption, a good
25 engineering assumption, that even -- whatever

1 losses there are are so negligible that we're not
2 able to measure them. Or the people that measured
3 them, the same -- the ATSDR did not actually
4 measure those -- those samples, okay? And that's,
5 again -- and everything that we do in modeling and
6 interpretations and all of that, it's sort of a
7 weight of evidence approach.

8 Q. Sure.

9 A. Okay? So we've got the AH report.
10 We've got our expert panel. We've got -- these
11 members actually did water distribution system
12 testing at various -- not at Camp Lejeune, but at
13 various locations, and we've got sampling data. So
14 you've got to take it all -- all together, okay?

15 Q. I just have a few more questions on
16 this topic --

17 A. Sure.

18 Q. -- and then we'll take a break.

19 A. Okay.

20 Q. Now, using Tarawa Terrace again as the
21 example, TT26 was the main well that was
22 contaminated, correct?

23 A. That is -- that is correct. There was
24 some contamination at TT23, which is referred to as
25 the TT new well. It only ran for about nine months

1 maybe. When it was put in, it was put in to a
2 contaminated aquifer, okay, so that's why its
3 concentrations are high immediately. But again,
4 TT26 was the major contributor.

5 Q. TT26 and TT23 weren't the only wells
6 providing water in Tarawa Terrace, right?

7 A. That is correct.

8 Q. And the wells at Camp Lejeune,
9 including Tarawa Terrace, were cycled, right, in
10 terms of the usage?

11 A. They recycled, yes, yes.

12 Q. And so simply comparing a finished
13 water sample versus an untreated water sample
14 doesn't tell you anything about which well the
15 water was coming from, right?

16 A. Well, we knew that based --

17 MR. DEAN: Object to the form.

18 THE WITNESS: We knew that based on the
19 modeling, okay, the contaminant fate and transport
20 model. The output of the contaminant fate and
21 transport model were the concentrations at specific
22 wells, okay? And you have to look in the model
23 output and you can see which wells were turned on
24 or off during which month. And then we had, again,
25 a simple mixing model.

1 BY MR. ANWAR:

2 Q. And --

3 A. And the key is the simple mixing model
4 mixed all -- all the wells together, okay, for
5 conservation of mass and continuity. And so when
6 we get a monthly concentration out of the mixing
7 model, okay, that's what we said went into the
8 water treatment plant.

9 Q. In -- in comparing finished water
10 samples and untreated water samples for purposes of
11 your rebuttal report in offering opinions about VOC
12 losses --

13 A. Right.

14 Q. -- at Hadnot Point and Tarawa Terrace,
15 did you go back and look to see what time frame the
16 samples came from, whether the wells -- which wells
17 were turned on and off, what information was
18 available?

19 A. Let's see what this is. I looked at
20 the treatment process, okay, because that's -- that
21 was the focal point of those claiming there were
22 major VOC losses versus negligible. And so I
23 looked -- you have to look at the treatment
24 process, okay? The treatment process starts at the
25 mixing of all the wells into the raw water tank.

1 And the assumption, engineering assumption, is that
2 there's instantaneous mixing, and we prove that in
3 the Chapter I report because we run parallel
4 models. We run the full-blown EPANET model, which
5 is water distribution, and we run the mixing model.
6 And after a week or ten days, they are equivalent
7 to the -- out to the four decimal places. So that
8 means you have -- the mixing model in addition to
9 what our expert panel told us, all the wells were
10 mixing at the water treatment plant in the raw
11 water tank and there was instantaneous mixing
12 compared to our monthly concentration needs.

13 Q. Okay. I think my last question on
14 this, so just taking the Tarawa Terrace example
15 here in your report at the top of page 31 where
16 you're comparing the 104 microgram per liter
17 unfinished water versus the 76 microgram per liter
18 in untreated water and the 82 microgram per liter
19 in treated water --

20 A. Right.

21 Q. -- I don't see it anywhere in your
22 report, but -- and so I think you would agree that
23 you don't know what percentage of water in the
24 untreated, treated, and finished water samples at
25 Tarawa Terrace came from TT26, right?

1 MR. DEAN: Object to the form.

2 THE WITNESS: You -- you could -- you
3 could actually compute that because the process to
4 get the mixing model results would be is you take
5 the well's capacity for a given month, how much
6 it's pumping, what the concentration is -- let me
7 back up. Hold on. Get the chapter right. It's
8 easier for me to explain the Chapter A here. Here.
9 Okay. It's -- it's a model here. Okay. Page A40
10 in Chapter A, equations one and two. Concentration
11 of PCE in finished water, okay? So we have all of
12 the information. You see it's summing over however
13 many wells were pumping versus whether they are
14 contaminated or not. So, yes, we do know, but the
15 assumption was -- in agreement with what our expert
16 panel recommended -- is that you could assume
17 instantaneous was a CSTR, continuously stirred tank
18 reactor model, for the mixing model. And so the
19 minute the wells hit the raw water tank, they all
20 mixed. And to us instantly was anything less -- a
21 good portion less than a month. And that's shown
22 in the Chapter I report. I can tell you exactly
23 where in a minute.

24 Q. Why don't we go ahead and take a break
25 if you're --

1 A. Okay.

2 THE VIDEOGRAPHER: Okay. We're going
3 off. Record the time is 2:33 p.m.

4 (A recess transpired.)

5 THE VIDEOGRAPHER: Okay. We are going
6 back on record. The time is 2:43 p.m.

7 THE WITNESS: Is it possible to qualify
8 or continue with where we left off?

9 BY MR. ANWAR:

10 Q. Sure. Did you have something you
11 wanted to --

12 A. Yes.

13 Q. -- correct or --

14 A. I would like you to turn to the Hadnot
15 Point/Holcomb Boulevard Chapter A report.

16 Q. Sure. What page are you --

17 A. Page A38, Figure A15.

18 Q. A38, A15.

19 A. Yes.

20 Q. Okay.

21 A. Okay. This is the same mixing model
22 that we talked about at the Tarawa Terrace. You'll
23 notice the equations on page -- the next, page A1
24 and A2 are the same equations one and two in Tarawa
25 Terrace report in Chapter A.

1 Q. Okay.

2 A. What I want to point out to is -- and
3 this is a conceptual or a schematic. If you look
4 at the distribution network of pipes on the
5 left-hand part of the Figure A -- mixing model
6 approach is the title of that section.

7 Q. Okay.

8 A. You'll see that there are little --
9 towards the right there's HPWTP, that tank
10 represents HP, and you've got contaminated, meaning
11 red, or uncontaminated, blue, symbols there mixing
12 into the -- into the HPWTP. Now, we did not do
13 step-by-step treatment process. What the
14 assumption is, and a correct assumption, an
15 approximation, is that they all instantaneously
16 mixed in the raw water tank. Once they mixed in
17 the raw water tank, if, in fact, there's this
18 massive VOC loss, you would see it in the samples,
19 and we didn't. And so our assumption was that
20 there was negligible losses within the treatment
21 process, and so what -- the concentration in the
22 tank through the mixing model is the same as the
23 contamination anywhere throughout the distribution
24 system.

25 Q. Okay. But you're talking sort of --

1 you're talking in the context of model -- still the
2 model, right?

3 A. That's exactly correct, yes.

4 Q. And at the end of the day, a model is
5 an approximation of reality, right?

6 A. Yes.

7 Q. There is no way to perfectly replicate
8 reality, right?

9 A. No, a model is an approximation. Some
10 are closer approximations and some are -- are not
11 as close, but it is an approximation. But at the
12 end of the day, if we are going to test the model
13 out, I'm speaking generically now of the model,
14 then that's where we go and gather some field
15 information or sampling information and see if it,
16 in fact, proves or supports -- that's probably a
17 better word -- supports the assumptions that we
18 made using this model.

19 Q. The pumping data for Tarawa Terrace and
20 TT26, the wells in Tarawa Terrace and TT26 in
21 particular, that was limited, right?

22 A. The pumping data? We had -- we had
23 monthly data. We had some early on in the --
24 early, early '50s or '40s. We had some annual
25 pumpage data. And then in -- I believe from about

1 -- for Hadnot Point from about 1998 through 2008,
2 we had daily pumping values.

3 Q. You said from 1998 to 2008?

4 A. That's my recollection, yes, we had
5 daily -- daily values.

6 Q. Well -- and those values are sort of
7 outside the time period we're -- we're interested
8 in, right?

9 A. No. Again, you've got the
10 epidemiological study, which goes from '68 to '85,
11 but we're using -- and I'm going to limit this
12 right now to groundwater flow and contaminant fate
13 and transport models; those are boundary-valued
14 problems. So you've got to take them out or start
15 them from a period of known water level, a period
16 of known concentration, and run them out until you
17 get back to a period of known information.

18 We -- at Hadnot Point we had some known
19 information because they were doing remediation
20 pumping so that the models there went out all the
21 way to 2008 because it was another set of data in
22 addition to the 1980s data that could get -- build
23 confidence, substantial confidence, in the modeling
24 results. So the models went out or started based
25 on hydrogeologic and modeling concepts and

1 frametimed where -- and part of the model went
2 through the epidemiologic study period, the two --
3 in other words, the epidemiology did not control
4 when we started or ended the model.

5 Q. 1998 is after 1987, right?

6 A. Yes.

7 Q. And --

8 A. If you're interested in building
9 confidence in your model and testing out the
10 goodness of fit of your calibration, if you've got
11 another set of information past the epidemiology --
12 again, the epidemiology doesn't impact how we're
13 calibrating or developing the model -- then you
14 want to use that.

15 Q. I guess more broadly speaking, you
16 know, we can debate the points of the actual
17 modeling, which, you know, you're an expert on it
18 and I'm not. But if ATSDR's modeling accounted for
19 VOC losses, why was it necessary to make a
20 statement that the VOC losses were -- were
21 negligible and, you know, why was it necessary to
22 make that -- that determination?

23 A. Okay. Because you needed to somehow
24 quantify, I felt, what he meant by negligible. He
25 does not say zero. He said negligible, okay? And

1 I'm speaking again in terms of pragmatic
2 engineering applications doing modeling; you make
3 these kinds of assumptions, okay? He also had
4 wanted to make sure someone -- when we say
5 negligible, if they read the expert panel and saw
6 Dr. Pommerenk, who is, I believe, AH consultant for
7 the Marine Corps who sat on our expert panel
8 saying, well, less than 10 percent, then someone
9 reading our reports would say, okay, negligible 10
10 percent -- even if there's VOC losses, there's
11 somewhere less in that -- in that range, and now
12 I'm looking at sampling data and it doesn't appear
13 to be from the sampling data any -- even 10 percent
14 loss anywhere, so negligible is a good
15 approximation.

16 Q. You -- and coming out of the expert
17 panel, you-all landed on 10 percent, right?

18 A. That's what the expert panel said,
19 okay? And that's when we got together either in a
20 team meeting, not part of the expert panel, but,
21 you know, subsequent, because the expert panel made
22 many recommendations, which we typically either
23 generally followed, and we, you know, we would just
24 say, oh, well, it's 10 percent, that's negligible
25 compared to the variation and all the other

1 parameters. Sampling data, aquifer properties, and
2 things of that -- well operations, things of that
3 nature. So we were confident with the -- had
4 confidence in assuming negligible VOC losses.

5 Q. And the AEE report said up to
6 15 percent, right?

7 A. Yes.

8 Q. And so when -- when we're talking about
9 negligible in terms of the decision ATSDR made in
10 determining VOC losses were negligible, we're
11 talking about between 10 and 15 percent, right?

12 MR. DEAN: Object to the form of the
13 question. Mischaracterizes the prior testimony.

14 THE WITNESS: I would say it was 10
15 percent because the representative of AH Consulting
16 Dr. Pommernek, who was also representing the
17 Department of Navy, U.S. Marine Corps on the expert
18 panel then -- then said, well, you know, I'll give
19 you that 90 -- there's a 90 percent passthrough, so
20 that's 10 percent. And then we also had other
21 water distribution system experts on there and --
22 like Dr. Walski, Dr. Grayman, Dr. Clark, and they
23 indicated in their experience that there would be
24 even less than 10 percent negligible.

25 Q. Okay.

1 A. And they have done analyses with other
2 water distribution systems like Tucson, Arizona,
3 Redlands, California and so on.

4 Q. Let's turn to Exhibit 10, which is
5 Chapter A for Hadnot Point and Holcomb Boulevard.

6 A. Okay. Oh, I've got it open right here.
7 Okay.

8 Q. And let's turn to page A1.

9 A. Okay.

10 Q. So just -- just so the record is clear,
11 we're now discussing the analysis for Hadnot
12 Point/Holcomb Boulevard, right?

13 A. That is correct, summary of findings.

14 Q. And footnote number seven on the first
15 page states, "for this study, finished water is
16 defined as groundwater that has undergone treatment
17 at a water treatment plant and was subsequently
18 delivered to a family housing unit or other
19 facility. Throughout this report and the Hadnot
20 Point/Holcomb Boulevard report series, the term
21 finished water is used in place of terms such as
22 finished drinking water, drinking water, treated
23 water or tap water." Did I read that correctly?

24 A. Yes.

25 Q. So ATSDR modeled -- ATSDR said it

1 modeled water that had undergone treatment at a --
2 at a water treatment plant at Hadnot Point,
3 correct?

4 A. That's not what that says, or that's
5 not what I interpret that to say. What that is is
6 trying to define what finished water is, okay?
7 There are different names. Some people would say
8 potable water, okay? It's not the same as potable
9 water. It's not the same as groundwater. It's
10 treated water, but that statement does not say we
11 modeled the treatment process. And I've -- I've
12 never maintained that we modeled the treatment
13 process.

14 Q. Okay.

15 A. And our expert panel in 2005 also said
16 that the treatment process did not have to be
17 modeled.

18 Q. Let's turn to page A33.

19 A. Okay. Okay. I'm there.

20 Q. Looking at number nine.

21 A. Okay.

22 Q. It states, "reconstructed simulated
23 monthly mean concentrations of PCE, TCE, 1-2-DCE,
24 and vinyl chloride and benzene for finished water
25 at the Hadnot Point water treatment plant were

1 determined by using a materials balance model
2 simple" --

3 A. Materials mass balance.

4 Q. Excuse me. "Materials mass balance
5 model, simple mixing, to compute the flow-weighted
6 average concentration of the aforementioned
7 contaminants. This computational method is based
8 on the principals of continuity and conservation of
9 mass, Masters 1998. The use of the materials mass
10 balance method is justified because all raw water
11 from water supply wells within the Hadnot Point
12 water treatment plant service area was mixed at the
13 Hadnot Point water treatment plant prior to
14 treatment and distribution." And then it says,
15 "details of this method are described in a
16 subsequent section of the report." Did I -- did I
17 read all that correctly?

18 A. Yes.

19 Q. Would you agree that what ATSDR called
20 finished water at the Hadnot Point water treatment
21 plant was based on a material mass balance model,
22 simple mixing, to compute flow-weighted average
23 concentrations of contaminants?

24 A. Yes.

25 Q. And agree that mass -- a mass balance

1 -- agree it was a mass balance model based on
2 continuity and conservation of mass?

3 A. Yeah, that's what equations A1 and A2
4 in this report and equations one and two in the
5 Tarawa Terrace Chapter A report -- the first
6 equation is continuity. The second one is
7 conservation of mass.

8 Q. Agree that continuity and conservation
9 of mass means the simple mixing model assumed that
10 mass of all contaminants entering the water
11 treatment plant were conserved through the water
12 treatment plant?

13 A. Yes.

14 Q. Okay. And they continued, correct?

15 A. What do you mean?

16 MR. DEAN: Objection to form.

17 BY MR. ANWAR:

18 Q. It assumed that they continued the --

19 A. You mean the flow continued?

20 Q. The mass of the contaminants.

21 A. I'm not following you. Are you asking
22 did the concentration from one -- once it's mixed
23 at the raw water tank is the same as the
24 concentration in the finished water tank?

25 Q. I think you answered my question.

1 Let's -- would you agree ATSDR modeled influent to
2 the water treatment plant as having the same
3 contaminant concentrations as the effluent from the
4 water treatment plant?

5 A. No, we modeled -- the influent, to me,
6 by definition, would be the different wells coming
7 into the raw water treatment tank. If you look at
8 the water distribution system utility maps, you'll
9 -- you'll see that the raw water from wells were
10 typically piped over to the raw water tank through
11 concrete pipes, okay, underground pipes. So once
12 all the wells fed into there, in the raw water
13 tank, I assumed there was instantaneous mixing, as
14 the mixing model does, okay, and then that -- that
15 would equal the finished water concentration.

16 Q. Okay. Let's look at A62.

17 A. What? I'm sorry?

18 Q. A62.

19 A. On HP report?

20 Q. Yes.

21 A. Page 62. Okay. Okay.

22 Q. Looking -- focusing on Table A18, you
23 would agree that Table 18 shows, among other
24 things, measured TCE concentrations at the Hadnot
25 Point water treatment plant?

1 A. Yes.

2 Q. Looking at TCE, you would agree there
3 are only a few measurements each of treated and
4 untreated water?

5 A. Yes.

6 Q. Agree the data is insufficient to
7 conclude no treatment losses, right?

8 MR. DEAN: Object to form.

9 BY MR. ANWAR:

10 Q. You can answer.

11 A. Okay. Using the data that we have, you
12 always want more data as a modeler, okay, always.
13 That's -- okay. So if you're asking me as a
14 modeler would I want more data than this, yes, but
15 we were working with the data that we had and that
16 was presented to us. And given this data, I see,
17 again, July 27th, treated -- or let me see the
18 exact wording, untreated and treated, footnote five
19 and six, they are approximately the same value.
20 That's the data I referenced in my rebuttal report.
21 So you use that data because that's what we have.

22 Q. Direct me to that again.

23 A. On page A62, if you go to 7/27/82, the
24 first listing has a footnote five which says
25 untreated. The second listing, 7/27/1982, under

1 TCE, it says 21.

2 Q. You said 7/27/1982?

3 A. Yes.

4 Q. TCE. And then the listing underneath
5 it, you're saying is --

6 A. It gives the treatment status.

7 Q. And your -- your opinion is that the
8 model indirectly accounted for treatment losses
9 based on those two points of data?

10 A. Based on those two points. Based on,
11 also, the January 28th through February 4th, 1985
12 shutdown of the Holcomb Boulevard treatment plant
13 where we just saw huge slugs of TCE within the
14 Holcomb Boulevard treatment system -- not
15 treatment, but distribution system. So again, we
16 used a weight of evidence approach. And then,
17 again, referring back to the expert panel report
18 that said, well, we did 10 percent, we -- we said
19 that justified the assumption of negligible.

20 Q. For the samples that you're -- that
21 we're discussing, the 7/27/1928 for TCE.

22 A. Yes, uh-huh.

23 Q. ATSDR didn't know if HP651 was pumping
24 on that day, right?

25 A. We could go back to the reconstructed

1 -- reconstructed pumping schedule and -- and figure
2 out if it was pumping or not. I would have to look
3 -- I would have to look at our pumping schedule.

4 Q. Okay. But that's a reconstructed
5 pumping schedule, correct?

6 A. It's still the only thing close to
7 reality that we have.

8 Q. But it's not reality, right?

9 MR. DEAN: Object to form.

10 THE WITNESS: It's what we used to
11 reconstruct and then compare these values to -- to
12 that. So it was -- it was pumping in the model.

13 BY MR. ANWAR:

14 Q. For -- in the absence of pumping data
15 for Tarawa Terrace, at least --

16 A. Right.

17 Q. -- ATSDR assumed that a well was
18 pumping unless you had evidence affirmatively
19 disproving that it was pumping, correct?

20 A. That is correct. And we then tested
21 that out through an uncertainty analysis by varying
22 the pumping through a Monte Carlo-type uncertainty
23 analysis, but the calibrated model assumed
24 continuous pumping unless it was shut down for
25 maintenance purposes.

1 Q. And with respect to the samples that
2 we've been discussing, the July 27, 1982, ATSDR
3 didn't know if HP651 was pumping the day before
4 either, right?

5 A. No, there's no indication as to the
6 status of the water supply wells feeding the raw
7 water tank. These are taken at the treatment
8 plant, not at the wells, if I'm -- yes, these are
9 taken at the treatment plant. So the wells have
10 already mixed, on, off, whatever.

11 Q. When you say no indication, what do you
12 mean?

13 A. There's no -- this table here is from
14 the water treatment plant, okay?

15 Q. Yeah.

16 A. So it does not contain an indication as
17 to which wells were on, which wells were
18 contaminated, which wells were on and not
19 contaminated, and which wells were off, okay?
20 This -- this particular table, okay? This is a
21 result of applying the -- a mixing model, a
22 flow-weighted mixing model.

23 Q. When you say this is the result, what
24 do you mean "this?"

25 A. Well, if you look under the

1 reconstructed column, the middle column there.

2 Q. Yeah.

3 A. Okay. That's what -- once we got the
4 concentrations out of the model for each of the
5 Hadnot Point wells --

6 Q. Yeah.

7 A. -- and we can tell which ones were
8 operating, which ones were not and have a zero
9 there, and then we knew what the reconstructed
10 concentration is, so then we would tabulate those
11 into an Excel spreadsheet, do the flow-weighted
12 mixing in the Excel spreadsheet.

13 Q. And, you know, I'm talking about not
14 the reconstructed schedule, but about real-world
15 data?

16 A. I understand that, but, again, as I
17 think we've discussed real early on, if my
18 recollection is correct, these are one point in
19 time samples, okay? And we are -- we are doing
20 monthly simulations, monthly results. So that's,
21 you know, just -- you need to keep that in mind
22 when you're looking at data versus modeling
23 results.

24 Q. Agree -- you would agree that you don't
25 know the percentage of water in those samples that

1 came from HP651?

2 A. Not in the -- not in the samples, but I
3 would know -- I would have to tabulate it, but I
4 would know in the reconstructed column.

5 Q. But the reconstructed column is a
6 simulation, right?

7 A. That's our best estimate, most likely
8 estimate.

9 Q. Okay. And that's because you don't
10 know the real-world data on whether -- what
11 percentage of water in those samples came from
12 HP651?

13 A. Not from the sampling data. However,
14 you do have the previous table, I think, or
15 somewhere in here, it's early on, there is a table
16 -- let's see. Here you go. Page A48.

17 Q. So I wanted to actually change topics a
18 little bit.

19 A. Oh, sure. Okay.

20 Q. Shift gears a little bit. You would
21 agree that it takes time for water to get through
22 the -- the water treatment plant, right?

23 A. Compared to the groundwater system,
24 it's instantaneous. I'm talking about hours or
25 maybe even minutes compared to days or months or

1 longer than that, you know. That's -- I think, as
2 I said previously, water distribution system models
3 use an hour time step, and you typically would
4 measure pressures. If you had any concentrations,
5 you would measure those at, say, at 15-minute
6 intervals, so you're talking about a much more
7 rapid process.

8 Q. Similar to our discussion on TT26 for
9 Hadnot Point, you would agree that whether --
10 whether HP651 was pumping had a significant impact
11 on the concentration of TCE entering the Hadnot
12 Point water treatment plant, right?

13 A. Yes.

14 Q. And you would agree that when HP651
15 stops pumping or stopped pumping, concentration of
16 TCE entering the Hadnot Point water treatment plant
17 would go down very quickly?

18 MR. DEAN: Object to the form.

19 THE WITNESS: Well, we could look at
20 the graph on page A63 in Chapter A here, Figure
21 A27. And you do see up and down with -- of TCE at
22 the water treatment plant, which is indicative of
23 cycling on and off of HP651. But unlike TT26, the
24 only time it goes to zero or close to zero is after
25 they completely turned the well -- the well off.

1 Q. But when HP651 stops pumping,
2 concentration of TCE entering the HP -- the Hadnot
3 Point water treatment plant goes down, right?

4 A. It -- it gets reduced, but because
5 there were so many -- there were other wells
6 pumping and contributing to the water treatment
7 plant and supplied -- supplied water, some of those
8 other wells, if they were contaminated, would --
9 would, you know, add to the concentration at the
10 water treatment plant.

11 Q. You would agree that when HP651 stops
12 pumping, at that very moment water coming out of
13 the Hadnot Point water treatment plant entered into
14 it with TCE concentrations from when HP651 was
15 pumping, correct?

16 A. Could you repeat the question again?
17 I'm sorry. I didn't follow.

18 Q. Sure. So when -- when HP651 stops
19 pumping, the water that was pumping into the Hadnot
20 Point water treatment plant doesn't immediately go
21 away, right?

22 A. That is correct.

23 Q. That water that had been pumping from
24 HP651 continues through the water treatment plant,
25 correct?

1 A. Yes. Again, the pipes are pressurized
2 and water is flowing full, okay? A storage tank is
3 not pressurized like the distribution pipeline, but
4 it's full, and so it's not that you have no water
5 stopped at 651 and then the raw water tank has no
6 more water in it. It's still filled with the
7 previous day's concentration, and if 651 was not
8 pumping on a particular day, you would still have
9 contaminated water in that raw water tank.

10 Q. And so carrying that through to
11 conclusion, if 651 stopped pumping and that water
12 -- but the water that had been pumping from 651
13 into the Hadnot Point water treatment plant entered
14 into it and then continued to be distributed, the
15 finished water sample from -- from that water that
16 pumped through 651 -- or excuse me, from the 651
17 water that had pumped through the Hadnot Point
18 water treatment plant would reflect that
19 contaminated water, right?

20 MR. DEAN: Object to form.

21 THE WITNESS: Okay. Could you clarify
22 that?

23 BY MR. ANWAR:

24 Q. Sure. So a moment ago you agreed with
25 me that when HP651 stops pumping, at that precise

1 moment the water that had been pumping into the
2 water treatment plant at Hadnot Point doesn't go
3 away, right?

4 A. That is correct.

5 Q. It -- that water that had been pumping
6 from 651 remains in the water treatment plant,
7 correct?

8 A. Yes, the water that's there the
9 previous day when HP651 was pumping, let's say --
10 for argument's sake let's say it's still there,
11 okay, but over a day's period it probably moved
12 through the treatment process.

13 Q. And a moment ago we -- we discussed
14 that ATSDR treated or used a mixing model for
15 purposes of finished water, correct?

16 A. That is correct.

17 Q. And so -- well, let's -- let's --
18 stepping away from the model, that water in the
19 Hadnot Point treatment plant from 651, that doesn't
20 immediately disappear, that still ends up in the
21 finished water, correct?

22 A. That is correct.

23 Q. Okay. And then 651 is now stopped and
24 other wells are pumping water to it, correct?

25 A. They are compensating for the loss of

1 the volume of the well, okay? Because at the end
2 of the day, when we were there in 2004 and
3 historically, having spoken with past operators,
4 they had to keep their tanks, finished water tanks
5 nearly filled for fire protection, okay, so they --
6 you would have had to compensate for HP651 with
7 other -- other wells.

8 Q. And those other wells pumping into the
9 HP treatment plant could include wells that weren't
10 contaminated, right?

11 A. That is correct.

12 Q. So in that case, if you were to take an
13 untreated sample and compare it to the treated
14 sample from the -- the HP651 water that went
15 through the system, the treated water would be
16 higher, likely, than the -- the untreated water
17 sample taken at the water treatment plant?

18 A. Again, I think we need to view this in
19 terms of the historical reconstruction that we did
20 on a monthly basis. Even though -- even though the
21 distribution system does the EPANET model, you can
22 do hourly calculations, meaning you can do daily
23 calculations. The output from the contaminant fate
24 and transport model and the mixing model are valid
25 on a monthly basis. So over a month, you would

1 have seen 651 come back on.

2 Q. But again, we're talking about the
3 model simulation world and not the real world?

4 A. But that's what we did at ATSDR. I
5 mean, that's -- that's the whole concept of
6 historical reconstruction or modeling in general,
7 is that we used models and applied models where we
8 may not have information, real data, and you build
9 confidence by the calibration process to use -- use
10 those models. We took, at ATSDR, the sampling data
11 that was provided to us by the Marine Corps,
12 Department of Navy or other -- other water quality
13 labs and that's the data that -- that we had.

14 Q. I'm going to hand you what I'm marking
15 as --

16 MR. ANWAR: I'm sorry. Can you remind
17 me, is this 15? I forgot to write one down. 16.

18 (DFT. EXHIBIT 16, Analyses and
19 Historical Reconstruction of Groundwater Flow,
20 Contaminant Fate and Transport, and Distribution of
21 Drinking Water Within the Service Areas of the
22 Hadnot Point and Holcomb Boulevard Water Treatment
23 Plants and Vicinities, U.S. Marine Corps Base Camp
24 Lejeune, North Carolina, Chapter A-Supplement 2,
25 Development and Application of a Methodology to

1 Characterize Present-Day and Historical Water
2 Supply Well Operations, was marked for
3 identification.)

4 BY MR. ANWAR:

5 Q. Did I actually hand you the exhibit?

6 A. No.

7 Q. Sir, do you have the exhibit?

8 A. No, you didn't tell me what 16 was.

9 Q. Sorry. I just put the sticker on it
10 and I lost my train of thought. I'll just put
11 another sticker on it.

12 Okay. I'm handing you what I've marked
13 as Exhibit 16.

14 A. Supplement 2. Okay.

15 Q. Can you turn to page -- so for
16 starters, this is part of the Hadnot Point/Holcomb
17 Boulevard analysis, correct?

18 A. Yes, it's Supplement 2 of Chapter A.

19 Q. Okay. And the title is "development
20 and application of a methodology to characterize
21 present-day and historical water-supply well
22 operations", correct?

23 A. That is correct.

24 Q. Okay. If you could turn to page S2.2.

25 A. 2.2. Okay. 2.2. Okay. Background?

1 Q. Yeah.

2 A. Okay.

3 Q. And so at the top of that page on the
4 right-hand side --

5 A. Right.

6 Q. -- paragraph starting "detailed daily
7 data."

8 A. Let me just take a look. Okay. I'm
9 there.

10 Q. Okay. So it starts by stating,
11 "detailed daily data pertaining to the pumping
12 schedule of the wells are available subsequent to
13 January 1998", correct?

14 A. That's -- yes, that's what we
15 previously discussed.

16 Q. Sure. And then "prior to 1998, data
17 pertaining to wells operation are limited or
18 unavailable", correct?

19 A. That is correct.

20 Q. And then it goes on to state,
21 "similarly, daily water treatment plant raw water
22 samples are available" --

23 A. Raw water volumes.

24 Q. Volumes. Excuse me, are -- let me
25 reread that.

1 A. Okay.

2 Q. "Prior to, similarly, daily water
3 treatment plant raw water volumes are available
4 after December 1994", correct?

5 A. That is correct.

6 Q. "And then between 1980 and 1994,
7 monthly raw water volumes are available. Yearly
8 volumes are available for some times -- for some
9 years prior to 1980. A trendline was used to
10 estimate raw water flows for years prior to 1980
11 when no data exist. Monthly raw water flow
12 percentages were then calculated using known
13 monthly data for the period 1980 to 2004. These
14 values are used to estimate monthly raw water flows
15 prior to 1980. This methodology is based on two
16 assumptions: Similar characteristics of the
17 operational patterns of the wells and water
18 treatment plants for the periods of time before and
19 after January 1998 and, two, the quality between
20 total water volume delivered to the water treatment
21 plant from the operating wells and the water
22 treatment plant raw water volume data at all
23 times." Did I read that correctly?

24 A. Yes, you did.

25 Q. Okay. Agree -- you'd agree that prior

1 -- based on this, prior to 1998, data pertaining to
2 well operations was limited or unavailable?

3 A. Yes, that's what that says.

4 Q. Agree that according to this, that
5 there were daily water treatment plant raw water
6 volumes available after 19 -- after December 1994,
7 correct?

8 A. Yes.

9 Q. Agree there were monthly raw water
10 volumes available for 1980 to 1994, right?

11 A. Yes.

12 Q. And then there were some yearly volumes
13 prior to 1980, right?

14 A. That is correct.

15 Q. ATSDR had to estimate pumping schedules
16 due to the lack of this data, right?

17 A. We had to estimate pumping schedules to
18 get the operational -- I'm equating operational and
19 pumping schedules to be able to code them in -- on
20 a monthly basis to the -- to the model, to the
21 groundwater flow and contaminant fate and
22 transport.

23 Q. And so if we go on to the next
24 paragraph, data availability.

25 A. Okay.

1 Q. "Four types of data sources pertinent
2 to water supply well operation -- operational
3 records and water treatment plant raw water records
4 are used in this supplement." It says "these are
5 daily operational records, January 1998 to
6 June 2008. Number two, Camp Lejeune historic
7 drinking water consolidated document repository
8 records. Number three, Camp Lejeune water
9 documents. Number four, U.S. Geological Survey.
10 Using these data sources, operational chronologies
11 for 1996" -- excuse me.

12 A. Wait.

13 Q. "Using these data sources operational
14 chronologies for 96 wells supplying groundwater, in
15 parentheses, raw water, to the Hadnot Point water
16 treatment plant and Holcomb Boulevard water
17 treatment plant were developed." Did I read that
18 correctly?

19 A. Yes, yes.

20 Q. You would agree that ATSDR didn't use
21 pumping data from the '80s, but used data from
22 pumping schedules after 1998 to estimate pumping
23 schedules during 1953 to 1987?

24 A. The way the methodology that's
25 described in Supplement 2, there was a training

1 period and then a predictive period. So the
2 training period typically went from 1998 to 2008
3 because that was known information on a daily
4 basis. And once we obtained the characteristics of
5 the operating wells based on that, then we could go
6 out and where we either had partial data or missing
7 data, use the prediction from there and apply the
8 prediction to the data gaps.

9 Q. So for Hadnot Point/Holcomb Boulevard
10 analysis and the model, you used predictions based
11 on pumping schedules after 1998, correct, to -- to
12 let me ask that again.

13 So based -- for Hadnot Point/Holcomb
14 Boulevard you used pumping schedules from after
15 1998 and predicted backwards the pumping schedules
16 during 1953 to 1987, right?

17 MR. DEAN: Object -- object to the
18 form.

19 THE WITNESS: Again, it says -- I think
20 it was up -- yeah, we also used -- for data we're
21 missing a trendline, which is an accepted
22 statistical approach in engineering. And the
23 algorithm developed by who is now Dr. Telci, the
24 first author on here. At the time he was with
25 Georgia Tech, used the training period for periods

1 of known water supply operations and then used the
2 predictive period for when we had to predict the
3 operations. So you have a combination of both
4 training and prediction.

5 BY MR. ANWAR:

6 Q. And that's training and prediction, but
7 that's -- that's both simulated pumping schedules,
8 correct?

9 A. No, well, the training was based on
10 daily data, okay, and all we're interested in is
11 monthly.

12 Q. The training was based on pumping
13 schedule data after 1998, correct?

14 A. Yes, yes.

15 Q. And then the simulated is the pumping
16 schedule from 1953 to 1987, right?

17 A. It would go through '98, actually. I
18 mean, for -- Hadnot Point/Holcomb Boulevard didn't
19 come online until '72, so you have different
20 periods there, but, yes, it would -- that's the
21 predictive period, is where you had either limited
22 -- because you might have a month information here
23 and there and stuff like that, but that's -- or
24 unknown information that you would use the
25 predictive values that came out for each well, each

1 certain well.

2 Q. Let's turn to page S12.

3 A. Okay. Okay.

4 MR. DEAN: S2.12 or just S12?

5 MR. ANWAR: I'm sorry. It's S2.12.

6 MR. DEAN: Okay.

7 MR. ANWAR: I've been staring at these
8 documents too long.

9 BY MR. ANWAR:

10 Q. And at the top of the left-hand --

11 A. Right.

12 Q. -- page it says, historical
13 reconstruction period, 1942 to 2007, prediction
14 process, correct?

15 A. Right.

16 Q. And this is the -- the training and the
17 -- this -- this paragraph in this section is
18 addressing the training and the prediction process
19 you were just describing, correct?

20 A. I believe it is. This shows the start
21 of prediction process. There should be another
22 flow chart somewhere, I seem to recall.

23 Q. I wanted to just ask you about some of
24 the language in the first paragraph.

25 A. Okay. Sure, sure. Go ahead.

1 Q. It says, "similar to the training
2 process, the prediction process, PP, is structured
3 as a series of calculations and checking steps.
4 The results of the steps were placed in separate
5 sheets of a Microsoft Excel workbook." And then
6 that last sentence, "because some wells did not
7 physically exist during the training period,
8 surrogate wells were selected to represent these
9 untrained wells." Did I read that correctly?

10 A. Yes, yes.

11 Q. And so you would agree in the training
12 process for reconstructing historical well pumping
13 schedules, ATSDR used surrogate wells for wells
14 that were untrained?

15 A. No, for wells that -- wells that did
16 not physically exist, okay? If you look at Figure
17 S2.2 on page S2.4.

18 Q. 2.4?

19 A. Yes. It's a full-page figure.

20 Q. Okay. Oh, I see. It's 2.4 --

21 A. S2.4, Figure S2.2.

22 Q. Okay. Yeah, I'm looking at 2.40. Go
23 ahead.

24 A. Okay. For example, you can take an
25 example here, let's just look at -- coming down,

1 HP604, okay? It stops operations at about 1960,
 2 but then you've got HP637. So HP604 may be -- or
 3 HP637 may be a surrogate well because HP604 no
 4 longer exists. And I think we list the --
 5 somewhere in here there's a table -- oh, there you
 6 go. The surrogate wells, okay. Table S2.2 on page
 7 S2.13, there's a list.

8 Q. Okay. So --

9 A. And looking at those wells and looking
 10 at that figure, you can see which wells were
 11 surrogate for wells that were no longer operating.

12 Q. On S2.13.

13 A. Yes.

14 Q. Table S2.2.

15 A. Right.

16 Q. Just looking at that, the surrogate
 17 wells include -- let me double-check. Surrogate
 18 wells were used for HP651, HP634, HP602, HP603 and
 19 HP608, right?

20 A. 608, yes.

21 Q. You would agree that ATSDR modeled
 22 reconstructed pumping schedules for these wells --
 23 strike that.

24 Okay. You would agree that ATSDR
 25 modeled reconstructed pumping schedules for these

1 wells based on 1998 to 2008 pumping schedules for
2 different wells, correct?

3 A. Say that -- say that again.

4 Q. Sure. So a moment ago we talked -- you
5 know, we -- we went through a list of the wells,
6 651, 634, 602, 603, 608, for which surrogate wells
7 were -- were used, right?

8 A. Yes.

9 Q. And to determine the pumping schedule
10 for these wells, 651, 634, 602, 603, 608, ATSDR
11 reconstructed the pumping schedule for surrogate --
12 based on surrogate wells from 1998 to 2008,
13 correct?

14 A. Yes.

15 Q. Okay.

16 A. That was the training period.

17 Q. Let's go back to Exhibit 10, which is
18 Chapter A for Hadnot Point/Holcomb Boulevard.

19 A. Okay. I'm right here. Yes.

20 Q. Give me a second and I will catch up
21 with you. Turn to page A84, please.

22 A. Okay. A84. Okay. Where it says
23 "trichloroethylene source release date sensitivity
24 analysis?"

25 Q. Correct.

1 A. Okay.

2 Q. So this is a discussion in Chapter A
3 for Hadnot Point/Holcomb Boulevard about TCE's
4 source release date and the sensitivity analysis
5 that was performed, correct?

6 A. Yes.

7 Q. Okay. So I wanted to start by reading
8 from that first paragraph on the left.

9 A. Okay.

10 Q. Which starts, "historical records
11 delineating the timing and volume of inadvertent
12 releases of solvents during routine -- routine
13 operations from leaking" -- it says "UST". Those
14 are underground storage tanks, right?

15 A. That's correct.

16 Q. Okay. "From leaking UST systems or
17 from disposal solvent waste, spent dry cleaning
18 filters or other materials, were not available for
19 the Hadnot Point/Holcomb Boulevard study area."
20 Did I read that correctly?

21 A. Yes.

22 Q. "For modeling purposes, a median source
23 release date of nine years from the date of the
24 underground storage tank system installation or
25 site development, in the case of the HPLF area",

1 which is a Hadnot Point landfill area, "was used in
2 the contaminant fate and transport models." Did I
3 read that correctly?

4 A. Yes.

5 Q. "This source release date formulation
6 is consistent with empirical data indicating that
7 the median time frame for leak development in
8 underground storage tank systems, typically in
9 piping and joint components, is nine years from
10 installation date." And there's a source to an EPA
11 document and another cite source. Did I read that
12 correctly?

13 A. That is correct.

14 Q. Okay. Then it goes on to state, "UST
15 systems were not the source of contaminants in the
16 Hadnot Point landfill area. However, given the
17 lack of historical information, a similar source
18 release time frame, in this case seven years from
19 site development, was applied to the Hadnot Point
20 landfill area sources within the model." Did I
21 read that correctly?

22 A. Yes.

23 Q. Would you -- you'd agree, based on this
24 paragraph, that historical records delineating or
25 providing information about the time and volume of

1 solvent contaminant releases from underground
2 storage tank systems, disposal of solvent waste,
3 spent dry cleaning filters or other materials
4 wasn't available for the Hadnot Point area?

5 A. That is correct. And that is why we
6 went to external references or other references
7 like the ones that we -- we cited, the EPA report
8 '6/'87 and the Gangadharan, et al., '87. I think
9 they discussed something like over 12,000 tanks
10 that they analyzed that -- and so we -- we felt
11 that was a good source of information to use.

12 Q. ATSDR -- still based on this paragraph,
13 you would agree ATSDR, the Hadnot Point/Holcomb
14 Boulevard model, assumed all underground storage
15 tank systems began releasing contaminants nine
16 years after the system was installed, right?

17 A. It's -- typically it was the piping
18 joints, okay? I think we say in there the actual
19 tank did not necessarily leak, but it was at the
20 pipe joints because of the construction methods
21 back then in the '40s and '50s and '60s, unlike
22 today where you have to have a concrete pad, solid,
23 and then you put the tank on. They just dug the
24 hole, put the tank on, then when they -- and
25 connected the pipes. And when the tank filled up,

1 then the pipes flexed, and that's where you got the
2 leakage.

3 Q. So it -- ATSDR, the Hadnot
4 Point/Holcomb Boulevard model assumed that the
5 piping joints for underground storage systems began
6 releasing contaminants nine years after
7 the systems --

8 A. Yes, based -- based --

9 Q. -- were installed?

10 A. -- on the references that we cited.

11 Q. Okay. And as you indicated, based on
12 references, that was based on an EPA study on
13 underground storage tank system leaks, that
14 following nine years was the median time frame for
15 leak development?

16 A. Yes.

17 Q. ATSDR assumed contaminant sources in
18 Hadnot -- in the Hadnot Point landfill started
19 seven years --

20 A. Yes.

21 Q. -- after site development, right?

22 A. Yes.

23 Q. Okay.

24 A. That's because the landfill, to our
25 knowledge, was unlined and it was not tanks. It

1 was just disposal of landfill material,
2 contaminated landfill material.

3 Q. And it was necessary to make these
4 assumptions about sort of the contaminant start
5 dates because the information of when the
6 underground storage tanks and the Hadnot Point
7 landfill began releasing contaminants, that's not
8 available, right?

9 A. You're talking about the Hadnot Point
10 industrial area or the landfill?

11 Q. Well, let's -- let's break them up.

12 A. Okay.

13 Q. So the assumption was made about
14 underground storage tanks systems beginning to
15 release contaminants nine years after the system
16 was installed, right?

17 A. Yes, that would be the Hadnot Point
18 industrial area.

19 Q. And -- but that's because -- and that
20 assumption was made because the data available
21 precisely identifying or pinning down when the
22 underground storage tanks began releasing
23 contaminants does not exist?

24 A. That is correct.

25 Q. Okay. And the same is true for the --

1 the Hadnot Point landfill assumption, correct?

2 A. Right. And we used a shorter time
3 period, again, because there were not underground
4 storage tanks, per se. It was a landfill, most
5 likely unlined, okay, and not individual tanks, but
6 just waste thrown or disposed of into the landfill.
7 So we assumed it would have a, you know, two-year,
8 short period until it started leaking for the
9 modeling purposes.

10 Q. But -- okay. Understood. But in terms
11 of real-world data, in terms of the actual data,
12 precisely pinning down when the Hadnot Point
13 landfill started releasing contaminants, that
14 doesn't exist, right?

15 A. Not to my knowledge, but that, again,
16 is part of the model -- model calibration process,
17 okay? That makes the source, then, a calibration
18 parameter both in terms of strength and in terms of
19 duration.

20 Q. Okay. And if -- turning to the next
21 page, A85.

22 A. Yes.

23 Q. That's the calibration you're -- you're
24 referencing, right?

25 A. That's a sensitivity -- you're in the

1 sensitivity analysis section, which is part of the
2 uncertainty analysis. We wanted to see the impact
3 of varying, again, the source release date.

4 Q. And that's what I meant. So this -- as
5 I read the sensitivity analysis, you varied the
6 release source -- the source release date from a
7 period of -- let's see -- minus nine years, meaning
8 nine years before the calibrated source release
9 date, to plus nine years, meaning nine years after
10 the calibrated release source date, correct?

11 A. That is correct.

12 Q. And in all of these scenarios, nine
13 years before the release -- calibrated source
14 release date, the model was still able to -- well,
15 strike that.

16 Well, can you remind me, what was the
17 calibrated source release date?

18 A. Hold on. Let me see. I have to go
19 back to off the top of my head. Well, the model
20 started in 1942 for Hadnot Point.

21 Q. Sure.

22 A. Hadnot Point landfill industrial, 1942,
23 I believe. So nine -- nine years after that would
24 be 1951, so that would be the calibrated.

25 Q. Okay. I've got you. Let's -- looking

1 -- returning back to the sensitivity analysis.

2 A. Okay.

3 Q. As -- you agree that this shows the
4 effect of the calibrated model of varying the start
5 date of contaminant sources, right?

6 A. Yes. What it does not show, as any
7 sensitivity analysis, it doesn't show whether
8 that's realistic or not. These are numerical,
9 okay? In other words, it just shows numerically
10 how the concentrations would shift forward or
11 backwards depending on the release date.

12 Q. In all of these scenarios, nine years
13 earlier than the calibrated source release date --

14 A. Right.

15 Q. -- five years earlier than the
16 calibrated source release date, the actual
17 calibrated source release date, which I see there,
18 it appears to be 1951, 1952?

19 A. Yeah, that's what we said, yeah.

20 Q. Yeah. Five years after the calibrated
21 release source date --

22 A. Right.

23 Q. -- nine years --

24 A. Right.

25 Q. -- after the calibrated release source

1 date, they all seem to converge during the period
2 of the epidemiological study. Do you see that?

3 A. Yes.

4 Q. And so based on the sensitivity
5 analysis, it's possible any one of these ranges
6 could have been the release source date?

7 A. No, because we assumed, as we did with
8 Tarawa Terrace, that we had a -- the calibrated
9 parameters would be your most likely to have
10 occurred, okay? And then these others are just
11 seeing the impact on -- on the model, I mean,
12 that's, you know, a five-year or nine-year change
13 is a pretty major, major change --

14 Q. Don't these --

15 A. -- of the release date, okay, so -- but
16 the most likely one is the calibrated one. I think
17 that's important to understand.

18 Q. I understand that the -- the most
19 likely is the -- you know, it's your opinion the
20 most likely --

21 A. Yes.

22 Q. -- is the calibrated?

23 A. Yes.

24 Q. But doesn't the sensitivity analysis
25 show that plus or minus nine years or five years

1 from the calibrated source release date, that it's
2 possible?

3 A. It's a possibility.

4 MR. DEAN: Object to the form.

5 THE WITNESS: It's a possibility, but,
6 again, that's -- typically, when you're conducting
7 sensitivity analyses and uncertainty analyses, you
8 want to get an understanding of how the system is
9 reacting to changes in -- in this case, it's a
10 single parameter.

11 Q. I'm going to mark another exhibit.

12 (DFT. EXHIBIT 17, Analyses and
13 Historical Reconstruction of Groundwater Flow,
14 Contaminant Fate and Transport, and Distribution of
15 Drinking Water Within the Service Areas of the
16 Hadnot Point and Holcomb Boulevard Water Treatment
17 Plants and Vicinities, U.S. Marine Corps Base Camp
18 Lejeune, North Carolina, Chapter C: Occurrence of
19 Selected Contaminants in Groundwater at
20 Installation Restoration Program Sites, was marked
21 for identification.)

22 BY MR. ANWAR:

23 Q. I'm handing you what I'm marking as
24 Exhibit 17.

25 A. Chapter C. Okay.

1 Q. This is Chapter C for the Hadnot
2 Point/Holcomb Boulevard analysis, correct?

3 A. That's correct.

4 Q. I would like you to turn to C98.

5 A. C98. Okay. Well, okay. Let's -- let
6 me rearrange the clip so I can...

7 Q. What's that?

8 A. Let me rearrange the clip.

9 Q. Sure.

10 A. Okay. C98. Okay. Table C8.

11 Q. Yes, Table C8. And Table C8 is
12 entitled -- or titled "summary of analysis for
13 benzene, toluene, ethylbenzene and total xylene and
14 water samples collected at Hadnot Point water
15 supply wells, Camp Lejeune", right?

16 A. Right.

17 Q. Okay. I wanted -- directing your
18 attention to HP602.

19 A. Okay.

20 Q. It has concentrations there for one,
21 two, three, four, five, six, seven, eight dates
22 there between 1984 to 1981, correct?

23 A. Yes, with two below detection limits.

24 Q. Correct, so two below detection limits
25 for HP602?

1 A. Yes.

2 Q. And then the other five above detection
3 limits with some value?

4 A. No, there's six.

5 Q. Oh, there's six. Excuse me.

6 The other six are above the detection
7 limit with some value and they are all ranging from
8 1984 to 1991, correct?

9 A. That is correct.

10 Q. And it appears five of the samples, the
11 -- for benzene there at HP602 are from '84?

12 A. Is that a question? I'm sorry.

13 Q. Yeah, is that right?

14 A. Okay. I've got one from '84, one, two,
15 three, four. Four above detection limits are from
16 1984.

17 Q. Okay. And then there's one from '85,
18 one from '86, then one from '91, correct?

19 A. Yes, that's correct.

20 Q. And then if we go down to HP608.

21 A. Okay.

22 Q. There are four samples between '84 and
23 '86, correct?

24 A. Yes.

25 Q. And one appears to be below the

1 detection limit?

2 A. Right.

3 Q. Okay. You would agree that this table,
4 it summarizes the measurements of benzene at the
5 Hadnot Point water supply -- water supply wells,
6 right?

7 A. Yes.

8 Q. And agree that benzene -- you would
9 agree that benzene at the Hadnot Point source wells
10 found only benzene above the detection limit at
11 HP602 and HP608, correct?

12 A. 608, yes. Let me -- 608, that's
13 correct, and then -- yes, above -- yeah, above the
14 detection levels, yes.

15 Q. And the samples at 602, the
16 concentration levels of benzene and the samples at
17 602 are much higher than the samples at 608, right?

18 A. Yes.

19 Q. For instance, the highest sample there,
20 at 602, is 720 micrograms per liter, right?

21 A. Yes.

22 Q. And the highest sample at 608 appears
23 to be four micrograms per liter?

24 A. Yeah, yes.

25 Q. Okay. So you would agree that the

1 driving source of benzene contamination at the
2 Hadnot Point water treatment plant was HP602,
3 right?

4 A. I would actually like to look at my
5 graphs here because we really need to look at --
6 okay. Benzene. HP602, yes.

7 Q. That was the --

8 A. Yes.

9 Q. -- driving source of benzene
10 contamination for that Hadnot Point water treatment
11 plant, right?

12 A. That's -- that's the measured data that
13 we have, so yes.

14 Q. Okay.

15 A. Based -- based on the measured data.

16 Q. Okay.

17 A. And the -- and the supply list.

18 Q. Let's turn back to -- I'm jumping
19 around a little bit -- Chapter A for Hadnot Point,
20 which is Exhibit 10.

21 A. For Hadnot Point? Yeah, I've got it
22 right here.

23 Q. Actually it's Supplement 1 for --

24 A. Okay. I don't have Supplement 1. I've
25 got Supplement 2 that you gave me.

1 Q. Okay. Let me mark it, then.

2 THE VIDEOGRAPHER: Sir, I'm going to
3 need to change the media when you get to a stopping
4 point.

5 MR. ANWAR: Sure. Let's stop right
6 now.

7 THE VIDEOGRAPHER: All right. Going of
8 record. The time is 3:59 p.m.

9 (A recess transpired.)

10 THE VIDEOGRAPHER: Okay. We are going
11 back on record. The time the 4:10 p.m.

12 BY MR. ANWAR:

13 Q. We are back on the record from a short
14 break, Mr. Maslia. Are you okay to continue?

15 A. Yes.

16 Q. Okay. Did you speak with your counsel
17 outside or during the break?

18 A. No, I did not.

19 Q. Okay. Thank you.

20 I'm handing you what I'm marking as
21 Exhibit 18.

22 (DFT. EXHIBIT 18, Analyses and
23 Historical Reconstruction of Groundwater Flow,
24 Contaminant Fate and Transport, and Distribution of
25 Drinking Water Within the Service Areas of the

1 Hadnot Point and Holcomb Boulevard Water Treatment
 2 Plants and Vicinities, U.S. Marine Corps Base Camp
 3 Lejeune, North Carolina, Chapter A-Supplement 1,
 4 Descriptions and Characterizations of Data
 5 Pertinent to Water-Supply Well Capacities,
 6 Histories, and Operations, was marked for
 7 identification.)

8 BY MR. ANWAR:

9 Q. Okay. This is Chapter A, Supplement 1
 10 for the Holcomb Boulevard/Hadnot Point analysis --
 11 or the Hadnot Point/Holcomb Boulevard analysis.

12 A. Right, that's correct.

13 Q. And it's titled "descriptions and
 14 characterizations of data pertinent to water-supply
 15 well capacities, histories and operations", right?

16 A. Yes.

17 Q. Okay. If you could turn to page S117.

18 A. Okay. I'm there.

19 Q. S117 is a figure for well HP602, right?

20 A. It's a table, yes.

21 Q. Table. You'd agree that this table
 22 shows what ATSDR concluded about HP602 operating
 23 history and capacity history, right?

24 A. Yes.

25 Q. Okay. You'd agree that well HP602 had

1 a relatively small capacity, right?

2 A. I would say -- I would say it'd
3 probably have an average capacity. I mean, there's
4 some -- like 69 goes down to 50 or 30, it looks
5 like. They then redeveloped the well. So I would
6 say it's average. It's average capacity.

7 Q. If you compare it to HP well 608 on
8 page S126.

9 A. HP608. Okay.

10 Q. Would you agree that the capacity for
11 well HP602 was less than, generally speaking, the
12 capacity for well HP608?

13 A. Yes.

14 Q. And focusing back on HR602 on S117.

15 A. Okay.

16 Q. Would you agree that the capacity
17 fluctuated significantly?

18 A. Yes, it fluctuated.

19 Q. Okay. And it fluctuated in a range
20 from 30 GPM on September 4th, 1969 --

21 A. Right.

22 Q. -- to 154 GPM on October 24, 1984,
23 right?

24 A. Yes.

25 Q. Looking at the table for HP602, you

1 would agree that HP602 was out of service multiple
2 times, correct?

3 MR. DEAN: Object to the form.

4 THE WITNESS: No, it's only out of
5 service one, two, three -- three times.

6 BY MR. ANWAR:

7 Q. I see -- it was out of service April of
8 1979?

9 A. Yes, that's one. Oh, out four times.
10 Out.

11 Q. It was out of service in October of
12 1981?

13 MR. DEAN: Which well? 60 --

14 THE WITNESS: 602.

15 MR. DEAN: Okay.

16 BY MR. ANWAR:

17 Q. You agree with that?

18 A. Yes, yes -- well, no, it says out.
19 Again, these records are directly from either the
20 water utility at Camp Lejeune or the well driller
21 or whatever. So it says out. It does not say out
22 of service. I don't know if that means -- if that
23 means it was just out on that date or whatever, but
24 the rest of them say out of service.

25 Q. Okay. It was -- it says out of service

1 on October 1981, correct?

2 A. Yes.

3 Q. So there's an October 1981 that says,
4 quote, out, and then the following entry on the
5 table is October 1981, out of service, right?

6 A. Yes, to me indicates we had, at least
7 on that one, a multiple record or two different
8 sources of records.

9 Q. And then November 30th, 1984, it was
10 out of service as well, right?

11 A. Yes.

12 Q. So it was out of service at least three
13 times, correct?

14 A. Yes.

15 Q. And then as of November 30th, 1984, it
16 was permanently closed or terminated, right?

17 A. Well, service was terminated and then
18 abandonment would be in '94, permanently closed.

19 Q. What -- what do you understand the
20 distinction to be between service terminated and
21 abandoned?

22 A. Service terminated would indicate they
23 just stopped using it, but it might still be
24 available for emergency purposes, whereas,
25 abandonment would mean that they would, I would

1 say, pull the well screen out, pull the pump out,
2 and maybe they seal it up with bentonite, concrete,
3 the hole up.

4 Q. Okay.

5 A. That's the difference. There's an
6 example for -- at Tarawa Terrace for TT23 that --
7 it says it was out of service, but, in fact, we
8 have records that show during April of '85 they
9 actually used it because they were short of water,
10 okay? So unless it's abandoned, the well casing
11 pulled and then concrete up -- that's what service
12 terminated means to me, is that it's not being
13 used.

14 Q. Okay. Based on the information in the
15 table, which I assume comes from the available
16 data, HP602 wasn't used after November 30th, 1984,
17 right?

18 A. That's what that indicates.

19 Q. Okay.

20 A. We have no -- no data between -- or
21 there's -- yeah, no data listed in the table
22 between -- after November 30th, 1984 and June 1994.
23 So just looking at those two pieces of data, it's
24 terminated in '84 and then abandoned in '94.
25 There's no indication on here as to whether it was

1 used for emergency purposes or other things like
2 that.

3 Q. Okay.

4 A. Which is always a possibility with a
5 well that's not abandoned.

6 Q. Turning the page back to S16 -- excuse
7 me, S126. Looking at the table on HP608.

8 A. Yes. Okay.

9 MR. DEAN: S?

10 THE WITNESS: 26. 1.26.

11 MR. DEAN: I guess I don't have that
12 one.

13 THE WITNESS: Is this Supplement 1?

14 BY MR. ANWAR:

15 Q. You'd agree that ATSDA -- ATSDR
16 determined capacity of HP608 ranged from 115 GPM to
17 230 GPM?

18 A. Yes.

19 Q. And as we discussed a few moments ago,
20 compared to 60 -- HP602 --

21 A. Wait. Hold on just a second. It
22 continues on page S127. It's got a capacity of 226
23 on 1983 -- March 21st, 1984.

24 Q. I see that. So my question was, do you
25 agree that the range for -- ATSDR determined the

1 capacity of HP608 to be in the range of 115 GPM on
2 the low end and 230 GPM on the high end?

3 A. Yes.

4 Q. And --

5 A. I just wanted to make sure we had the
6 full table in front of us.

7 Q. No, I appreciate that. Compared to --
8 and we discussed a moment ago, and you're welcome
9 to turn back to look if you would like, but for
10 HP602 the range was 30 GPM to 154 GPM?

11 A. Yeah, that's correct.

12 Q. Okay. You agree that the table on --
13 for HP608 on page S127 shows that service was
14 terminated for HP608 on December 6, 1984, correct?

15 A. Yes, that's what it states.

16 Q. Okay. I would like to turn back to
17 Chapter C.

18 A. Chapter C. Okay.

19 Q. For the Hadnot Point/Holcomb Boulevard
20 analysis.

21 A. Yes. Okay. Chapter C.

22 Q. If I could direct you to page 108.

23 A. 108. Okay.

24 Q. Page C108, there's a Table C12 on it,
25 right?

1 A. Yes.

2 Q. Okay. So there are three entries
3 there, November 19, 1985, where benzene was
4 detected at 2500 micrograms per liter, right?

5 A. Yes.

6 Q. And then there's an entry December 10,
7 1985 where benzene was detected, 38 micrograms per
8 liter, right?

9 A. Yes.

10 Q. And then there is an entry just below
11 it, December 18, 1985, where benzene was detected,
12 one microgram per liter, right?

13 A. That's correct.

14 Q. Okay. Outside of those three entries
15 in November 1985 and December 1985, according to
16 this table, benzene was never detected above the
17 detection limit at the Hadnot Point water treatment
18 plant, right?

19 MR. DEAN: Object to the form.

20 THE WITNESS: Based on the sample data?
21 We're talking about the data in this table?

22 BY MR. ANWAR:

23 Q. Yeah.

24 A. With the exception of those three
25 readings that you cited, everything else was below

1 the detection limit.

2 Q. And just for the record, the -- we're
3 looking at Table C12. It's entitled "summary of
4 analyses for benzene, toluene, ethylbenzene and
5 total xylene in water samples collected at the
6 Hadnot Point water treatment plant at Camp
7 Lejeune", right?

8 A. Yes.

9 Q. Okay. So these are samples collected
10 at the Hadnot Point water treatment plant?

11 A. Right.

12 Q. Okay. And so a moment ago -- so for --
13 still focusing on C12 on -- Table C12 on
14 November 19, 1985, December 10, 1985, and
15 December 1985. Do you see that?

16 A. Yes.

17 Q. A moment ago we looked at tables with
18 the operating and pumping histories for HP602 and
19 HP608. Do you recall that?

20 A. Yes.

21 Q. So at the time of these three
22 detections for benzene, HP602 and HP608 were shut
23 down, right?

24 MR. DEAN: Object to the form.

25 THE WITNESS: I need to -- let's see.

1 Supplement 1, I'm guessing, yeah.

2 BY MR. ANWAR:

3 Q. Yeah, and if you want to --

4 A. Share the dates.

5 Q. -- go look over it, it was -- the 608
6 is on S126 and 27.

7 A. Okay. November 19th, '85.
8 November 19th, '85.

9 Q. HP608 --

10 A. Yes, yes, it was not, according to this
11 table, not operating, not in service.

12 Q. Yeah. And according to the table, it
13 was terminated in December, December 6th, 1984,
14 right?

15 A. Right.

16 Q. So almost -- it had been shut down for
17 almost a year --

18 A. Right.

19 Q. -- by the time the benzene was
20 detected --

21 A. Uh-huh.

22 Q. -- at the Hadnot Point water treatment
23 plant, right?

24 A. That's correct.

25 Q. Okay. Then 602, which is page 17,

1 S117.

2 A. Okay. I'm there.

3 Q. And we discussed this service was
4 terminated November 30th, 1984?

5 A. Yes.

6 Q. And it, likewise, had been shut down
7 almost a year by the time benzene was detected at
8 -- above detection limits at the --

9 A. Right.

10 Q. Or strike that.

11 It too -- the HP602 was -- also had
12 been shut down in November 30th, 1984, which was
13 about a year after benzene was detected at the
14 Hadnot Point water treatment plant, correct?

15 A. No, we've got '85 at the water
16 treatment plant. Is that what you're speaking
17 with, the benzene detections at the water treatment
18 plant?

19 Q. Correct.

20 A. That was in November '85 and it says
21 service terminated November 30, 1984.

22 Q. So almost a year had passed, right?

23 A. Yes.

24 Q. Okay. Would you agree that -- well,
25 strike that. Let me ask it this way. Residual

1 benzene from HP602 or HP608 used -- before
2 December 1984 was not the source of benzene in the
3 November and December 1985 samples we just looked
4 at, right?

5 MR. DEAN: Object to the form.

6 THE WITNESS: Again, this well says
7 service terminated. There's always the possibility
8 that they were operated and not recorded as
9 operated. I'm saying we observed at that Tarawa
10 Terrace, but -- and for the 2500 part per billion,
11 if you go to the Chapter C report, it might be in
12 this report also, we noted that the base chemist,
13 Elizabeth Betz, noted on that one that it was not
14 representative, okay? She did not say -- the
15 samples don't say that that's not a valid sample.
16 It said it was just not representative.

17 And we actually had a phone interview
18 with her and there's some documentation, with
19 Elizabeth Betz, to ask her did that mean that
20 sample was, you know, not valid and all of that. I
21 asked the question and she answered to me that, no,
22 she just meant that benzene sample -- especially
23 benzene samples would go up and down, up and down
24 until there was no regularity to the
25 concentrations.

1 BY MR. ANWAR:

2 Q. Well, in that conversation, was she
3 referring to the 2500 micrograms per liter?

4 A. I specifically asked her about that,
5 yes.

6 Q. And your understanding is -- from her
7 is that that sample from Hadnot Point water
8 treatment plant was not representative?

9 A. Yes, but I asked her -- that's marked
10 on the JTC lab reports. It's not -- and it's also
11 marked in our Chapter C.

12 Q. Sure.

13 A. Just to be clear. And I asked her what
14 was meant or what was her understanding of not
15 representative, and she said that -- and it's
16 recorded in the notes or meeting notes that we had
17 with her, phone conference, that she meant that
18 there was just -- the benzene sampling data would
19 go up and down, up and down by a large amount, and
20 so that's why it was not representative. She did
21 not say -- I asked her and she said she -- because
22 I asked if she meant that she would consider that
23 sample or, you know, or it was an erroneous sample,
24 and she definitely said, no, she just -- her
25 meaning was that it was -- the sampling data went

1 high and low, high and low.

2 Q. As you sit here today, you don't have
3 any reason to believe that the residual -- residual
4 benzene from HP602 or HP608 used before December
5 1984 was the source of benzene samples in November,
6 December 1985?

7 A. We really did not do a residual
8 analysis and, as you know, benzene is a floater.
9 It floats on top of water, so like salad dressing
10 with oil and vinegar. When you shake it up, maybe
11 stir it up, and then it separates out. So we
12 really did not do a residual analysis to see you
13 know, that specificity.

14 Q. But you don't have any definitive data
15 demonstrating that it was residual benzene from
16 HP602 or HP608 used before December 1984 that was
17 the source of this November, December 1985 benzene
18 samples?

19 A. Well, we've got our reconstructed
20 values at the water treatment plant.

21 Q. Well, and we don't need to look at
22 those.

23 A. Okay.

24 Q. I'm just talking in terms of the
25 real-world data, not in terms of the model right

1 now.

2 A. Okay. So again, ask your question
3 again.

4 Q. Just some terms of real-world data, you
5 don't -- there isn't any real-world data available
6 or that exists demonstrating that HP602 -- residual
7 benzene from HP602 or HP 608 used before
8 December 1984, which is when those two wells
9 closed, was the source of the
10 November/December 1985 measurements in the Hadnot
11 Point water treatment plant?

12 A. I do not have data for those wells
13 after they went out of service.

14 Q. Now, Tarawa Terrace, if I remember
15 correctly, ATSDR didn't use nondetects in the
16 geometric bias; is that right?

17 A. What's published in the published
18 title, yes, that's correct, we did not ignore the
19 data. They're published in the table, but when we
20 went to compute the geometric bias, we did not
21 include the nondetects because there's a whole area
22 of analysis about nondetects value -- what value
23 should you include or what value should you assign
24 or not assign and things of that nature.

25 Q. And in the published data you didn't --

1 ATSDR didn't use nondetects in the geometric bias,
2 which was used to assess calibration, right?

3 A. That is correct.

4 Q. Okay.

5 A. But we did publish it in the tables
6 accompanying -- accompanying that, okay, for both
7 the wells and -- supply wells and the treatment
8 plant.

9 Q. And as I understand it, from the very
10 beginning of our conversation today, it sounds like
11 you've done some additional work with respect to
12 geometric mean -- or geometric bias?

13 A. Yes.

14 Q. Okay. And was that only for Tarawa
15 Terrace?

16 A. It was for Tarawa Terrace and I'd have
17 to look at my notes. I might have done it for the
18 Hadnot Point water treatment plant.

19 Q. That would be reflected in your notes?

20 A. Yes.

21 Q. And do you intend to offer that opinion
22 if called to testify at trial?

23 A. That we -- that I reassessed the
24 computation?

25 Q. Yes.

1 A. Yes. Well, I mean, I will defer to the
2 attorneys on that, but I have notes that I'll turn
3 over to the attorneys.

4 Q. Okay. How --

5 MR. DEAN: Well, I mean, you should
6 answer his question fully because you can update
7 and amend your opinions pursuant to the rules in
8 the deposition if he asked. So if you've completed
9 your answer, fine. If you didn't, finish answering
10 his question.

11 THE WITNESS: No. I mean, I looked
12 again, as we discussed earlier today, after reading
13 Dr. Konikow's report, and he discussed the issue of
14 using duplicate samples or triplicate samples
15 within the same day or same month when the model
16 results only provide you one value per month. So
17 then I went back and recomputed using that
18 approach. So if we had two samples in a month,
19 then I would take an average. If you had three, I
20 would take an average, so I would compare one to
21 one.

22 Q. Okay. I have to find my place again.
23 Okay. How did ATSDR assess calibration of the
24 Hadnot Point mixing model for benzene with only --
25 or primarily nondetect data points?

1 A. Let me get to Chapter C and in table --
2 on Table A18 on page A62, we've got supply well.

3 Q. Is this on Chapter A or Chapter --

4 A. Chapter A. I'm on Chapter A, yes.
5 Chapter A of Hadnot Point.

6 Q. Okay. What -- what page were you
7 looking at?

8 A. I was on page A62. Okay. I misspoke.
9 That was the water treatment plant, okay? We had
10 measured data and then we had reconstructed data.
11 So I may have computed a geometric mean just, like,
12 on scratch paper, but I did not publish it as part
13 of the Chapter A for Hadnot Point/Holcomb Boulevard
14 report.

15 Q. Why did you treat that differently than
16 for Tarawa Terrace?

17 A. I really don't -- don't know. I know
18 we were under a timeline crunch to get it out and
19 it just may have been that it was not -- that I
20 looked at -- I just looked at visually the values,
21 reconstructed versus measured, and said, you know,
22 that was, you know, provided a good fit. And also
23 looked at the wells on page -- well, they're graphs
24 and stuff like that, but also there's a table
25 earlier on. Somewhere there's a table. And just

1 said that I was satisfied with -- with the -- with
2 the fit or the goodness of fit of the calibrated
3 results with the available water treatment plant
4 data.

5 It was also -- with Tarawa Terrace we
6 had just PCE, okay, one constituent. Whereas here
7 we had multiple constituents and I may have -- I
8 said, well, maybe we need to look into each one
9 individually or something like that. It was a
10 little more complex computation, and so it did not
11 end up in -- in the published report.

12 Q. Would you agree that not assessing
13 geometric bias affects uncertainty and reliability
14 for the Hadnot Point model?

15 A. Not necessarily because, again,
16 geometric bias just gives me an estimate; is the
17 model way over or way under or it's in the
18 ballpark, okay? And again, I'm looking at the
19 plot. A graphic is just as good as a geometric
20 bias. A geometric bias is putting a quantitative
21 estimate on a graphic, okay? Had this graphic, and
22 so it was just a computation that was not done for
23 this -- this analysis. You can go back and -- and
24 do it. I mean, as I said, I've got my notes.

25 Q. Okay. If you could turn back to

1 Chapter C on page C106.

2 A. 106?

3 Q. Yeah.

4 A. 106. Okay. I've got it.

5 Q. On C106 there's a Table C11, right?

6 A. Yes.

7 Q. It states, "summary analyses for PCE,
8 TCE, 1-1-DCE, trans-1-2-DCE, 1-2-DCE" -- it says,
9 "1-2-DCE, total 1-2-DCE, and vinyl chloride in
10 water samples collected at the Hadnot Point water
11 treatment plant, Camp Lejeune", correct?

12 A. Yes.

13 Q. Okay. I just wanted to ask you a few
14 questions about this.

15 A. Sure.

16 Q. You'd agree that this table summarizes
17 measured PCE and degradation product observations
18 at the Hadnot Point water treatment plant?

19 A. Yes.

20 Q. You'd agree that vinyl chloride was
21 never detected above the reporting limit at Hadnot
22 Point water treatment plant?

23 A. There's -- on February '85 the value --
24 estimated value of 2.9.

25 Q. Where are you looking? February --

1 A. C11, February 5th, 1985 all the way
2 across the last column. It says 2.9J.

3 Q. Okay. Aside from that one time, would
4 you agree that vinyl chloride was not detected
5 above the detection limit?

6 A. Let me make sure this goes -- is this
7 the same -- Table C10, C11. You're just talking
8 about Table C11, right?

9 Q. Correct.

10 A. Yes, that would be --

11 Q. You would agree that aside from that --
12 that one time in -- on February 5th, 1985, that
13 vinyl chloride was never detected above the
14 detection limit?

15 A. Yes.

16 Q. And this is for that Hadnot Point water
17 treatment plant, right?

18 A. That's correct.

19 Q. Okay. And then you would agree that
20 DCE was rarely detected above the detection limit
21 at the Hadnot Point water treatment plant?

22 MR. DEAN: Object to the form.

23 THE WITNESS: No, where there's a
24 trans-DCE, 1-2-DCE on February 5th, again, 1985, of
25 150 micrograms per liter.

1 BY MR. ANWAR:

2 Q. So that's that one time?

3 A. Yes.

4 Q. Would you agree, aside from that one
5 time, that DCE was not detected above the reporting
6 limit at the Hadnot Point water treatment plant?

7 MR. DEAN: Object to the form.

8 THE WITNESS: Yes.

9 BY MR. ANWAR:

10 Q. Okay. Let -- jumping around. Let's
11 turn back to Chapter A for Hadnot Point/Holcomb
12 Boulevard.

13 A. Okay. Okay.

14 Q. I would like to direct your attention
15 to A46.

16 A. Page A46?

17 Q. Correct.

18 A. Okay.

19 Q. There are a series of graphs there
20 entitled Figure A18, correct?

21 A. A18, yes.

22 Q. And A18 is titled "reconstructed or
23 simulated and measured concentrations of TCE at
24 selected water supply wells within the Hadnot Point
25 industrial area." Did I read that correct?

1 A. Yes.

2 Q. Okay. And the wells reflected on these
3 graphs are HP602, HP608, HP634, and then there's
4 well HP601 and, slash, HP660, correct?

5 A. That is correct.

6 Q. Would you agree that these -- this
7 figure shows calibrated model values at HP well
8 601, 602, 608 and 634?

9 A. They show the -- yes, the red line is
10 the simulated values.

11 Q. Okay.

12 A. Or reconstructed values, and the black
13 dots are the measured.

14 Q. So the -- for instance, at HP602 there
15 are one, two, three, four, five, six measured
16 values reflected on the graph, right?

17 A. Yes.

18 Q. For HP601 it looks like there are three
19 measured values on the graph, right?

20 A. Yes, they are measured for HP660, which
21 was the replacement well.

22 Q. For 601, right?

23 A. Yes.

24 Q. For HP608, it looks like there are four
25 values reflected on the graph?

1 A. Yes.

2 Q. And for HP634 it looks like there is
3 one value reflected on the graph?

4 A. Yes.

5 Q. Those are the measured values we're
6 talking about, correct?

7 A. That is correct.

8 Q. And then the -- that red -- the red
9 line is what the model is simulating as estimated
10 concentrations?

11 A. Yes, that's correct.

12 Q. These graphs show some measured values,
13 but they show none of the nondetect values,
14 correct?

15 A. That's correct.

16 Q. And you would agree that if we turn to
17 -- you might keep this page open --

18 A. Okay.

19 Q. -- but also turn to Chapter C, C95.

20 A. Right. C95?

21 Q. Correct.

22 A. Okay. I'm there. Table C7.

23 Q. Yes.

24 A. Okay.

25 Q. C7, "summary of analyses, PCE, TCE, DCE

1 and vinyl chloride for water samples collected at
2 Hadnot Point water treatment plant", right?

3 A. Right.

4 Q. Okay. For HP634 there, there are four
5 values below the nondetect limit, right -- or
6 excuse me, there are four -- four nondetects?

7 A. In Table C9 -- I mean, on Table C7?

8 Q. Yes.

9 A. For 634 there's -- yes, that's correct.

10 Q. And if you go back and look at A46,
11 there's one measured value reflected there, right?

12 A. That's correct.

13 Q. But those -- those four nondetects are
14 not reflected?

15 A. That's correct. The issue with trying
16 to graphically represent nondetects gets back to
17 what value are you going to use. If we use the
18 detection limit, then someone can argue, well, you
19 don't know that definitively because it was
20 nondetect. If you want to use half the detection
21 limit, again, that's just an estimate. There are
22 some other complex methods where people -- Dennis
23 Helsel and others who have worked in the nondetect
24 area, that you can estimate and quantify the
25 nondetects, but for our purposes we used the

1 graphics in the reports as -- and companions to the
2 tables. So if someone wanted to see what all the
3 values were, they could go to the -- to the table
4 and see that we had nondetects and we also had
5 above detection limits.

6 Q. Okay. Let's -- let's look at -- and
7 let me mark it. Let's switch gears a little bit.

8 A. Okay.

9 Q. I'm going to hand you what I'm marking
10 as Exhibit 19.

11 (DFT. EXHIBIT 19, Analyses and
12 Historical Reconstruction of Groundwater Flow,
13 Contaminant Fate and Transport, and Distribution of
14 Drinking Water Within the Service Areas of the
15 Hadnot Point and Holcomb Boulevard Water Treatment
16 Plants and Vicinities, U.S. Marine Corps Base Camp
17 Lejeune, North Carolina Chapter A-Supplement 6,
18 Characterization and Simulation of Fate and
19 Transport of Selected Volatile Organic Compounds in
20 the vicinities of the Hadnot Point Industrial Area
21 and Landfill, was marked for identification.)

22 THE WITNESS: Okay.

23 BY MR. ANWAR:

24 Q. Here you go.

25 A. Supplement 6. Okay.

1 Q. Exhibit 19 is a Hadnot Point/Holcomb
2 Boulevard Chapter A-Supplement 6, right?

3 A. That is correct.

4 Q. Okay. And it's titled
5 "characterization and simulation of fate and
6 transport of selected volatile organic compounds in
7 the vicinities of the Hadnot Point industrial area
8 and landfill", right?

9 A. That is correct.

10 Q. Okay. Can I have you turn to page
11 S645?

12 A. Okay. 645. Okay.

13 Q. And S645 includes a discussion of --
14 it's entitled discussion and limitations, correct?

15 A. That is correct.

16 Q. And that's of the Hadnot Point/Holcomb
17 Boulevard analysis and model, correct?

18 A. Yes, yes.

19 Q. Okay. Looking over on the right-hand
20 side, second paragraph, it starts, "for contaminant
21 fate and transport modeling reported herein,
22 however, insufficient water quality data existed to
23 conduct a statistical analysis for assessment of
24 model calibration fit. In addition, specific data
25 pertinent to the timing of initial deposition of

1 contaminants to the ground or subsurface
2 chronologies of waste disposal operations such as
3 dates and times when contaminants were deposited in
4 the Hadnot Point landfill or descriptions of the
5 temporal variation of contaminant concentrations in
6 the subsurface generally are not available."

7 Did I read that all correctly?

8 A. Yes.

9 Q. Okay. And then it goes on,
10 "determining these types of source identification
11 and characterization data became part of the
12 historical reconstruction, whereby the contaminant
13 fate and transport model was used to test source
14 locations, varying concentrations, and beginning
15 and ending dates for leakage and migration of
16 source contaminants to the subsurface and the
17 underlying groundwater flow system." Did I read
18 that correctly?

19 A. That's correct.

20 Q. Okay. So then the next starts,
21 "conducting a robust uncertainty analysis using
22 Monte Carlo analysis requires simulating thousands
23 of realizations. When using available
24 computational equipment, the Hadnot Point
25 industrial area and the Hadnot Point landfill

1 models have a simulation time of about six to
2 eight hours for each simulation. The lengthy
3 simulation times and the substantial data
4 limitations therefore make a comprehensive
5 uncertainty analysis computationally prohibitive
6 based on available resources and time limitations.
7 Thus, the ranges of values presented in the
8 sensitivity analysis section of this report assess
9 a limited number of input and output model
10 parameters. The results, in other words, range of
11 concentration presented in the sensitivity analysis
12 reported herein, should not be considered or
13 interpreted as the results of a robust and
14 comprehensive uncertainty analysis, but do provide
15 insight into parameter sensitivity and uncertainty
16 in a qualitative sense."

17 Did I read that all correctly?

18 A. Yes.

19 Q. Based on the two paragraphs we just
20 read together, you would agree that ATSDR did not
21 conduct a statistical analysis to assess model
22 calibration and fit at Hadnot Point because there
23 wasn't sufficient water quality data, right?

24 MR. DEAN: Object to the form of the
25 question and misstates and mischaracterizes the

1 document.

2 THE WITNESS: I'm just seeing where we
3 said that on this -- I'm sure I'm --

4 MR. BELL: Are y'all allowed to have
5 candy bars?

6 MR. ANWAR: Sure.

7 MR. BELL: I know it's late in the day.
8 Someone said, well, don't give him anymore.

9 THE WITNESS: Yeah, it's -- as it
10 states in the report, insufficient water quality
11 data and the statistical analysis for assessment of
12 model calibration is not -- was not conducted,
13 okay? I believe they were referring to -- this was
14 the -- this was the groundwater flow -- the
15 contaminant fate and transport groundwater model,
16 not necessarily the mixing model and -- at the
17 Hadnot Point water treatment plant, okay? That may
18 have been able to have been computed.

19 BY MR. ANWAR:

20 Q. But you agree statistical analysis to
21 assess model calibration fit wasn't conducted
22 because -- because there was insufficient water
23 quality data, right?

24 A. Yes, that's what it says.

25 Q. Okay. And in this paragraph, when it's

1 referencing water quality data, you would agree
2 that means measurements of contaminant
3 concentrations, right?

4 MR. DEAN: Object to the form.

5 THE WITNESS: That's what I would
6 interpret it to mean.

7 BY MR. ANWAR:

8 Q. Okay. So earlier, just, I think, a few
9 minutes ago, we talked about geometric bias at the
10 Hadnot Point mixing model?

11 A. Right.

12 Q. Would you agree this says one wasn't
13 done?

14 A. Again, I'm looking at -- this is
15 strictly a groundwater contaminant fate and
16 transport. It would have been done or could have
17 been done in the summary chapter, Chapter A, but I
18 do not see it there, so it was not conducted.

19 Q. One was --

20 A. It was not computed. Let me just -- it
21 was not computed like it was computed for Tarawa
22 Terrace.

23 Q. One wasn't computed for the fate and
24 transport model for Hadnot Point, correct?

25 A. One was not computed for the water

1 supply wells at Tarawa Terrace -- let's go back.
2 We computed geometric bias for the water supply
3 wells and then we also computed a geometric bias
4 for the water treatment plant, okay? So Supplement
5 6 is strictly the groundwater flow model, so there
6 was not one conducted -- computed for the supply
7 wells at Hadnot Point and Holcomb Boulevard.

8 Q. Okay. I just want to make sure. There
9 was not one computed for the supply wells, correct?

10 A. That is correct.

11 Q. And would you agree there was not one
12 conducted for fate and transport?

13 MR. DEAN: Object to the form.

14 THE WITNESS: That would -- that would
15 be the supply wells.

16 BY MR. ANWAR:

17 Q. Okay. I've got you.

18 A. Okay. The fate and transport model,
19 you would pull out the concentrations at the well
20 locations.

21 Q. Okay. That's what I wanted to make
22 sure I understood. Thank you.

23 And so now kind of looking back at the
24 paragraphs we just read.

25 A. Okay. Hold on. Go back there.

1 MR. DEAN: Page 45, 645. I think
2 that's where...

3 THE WITNESS: Yeah, I'm there.

4 BY MR. ANWAR:

5 Q. It says, you'd agree, "that specific
6 data pertinent to the timing of initial deposition
7 of contaminants to the ground or subsurface
8 chronologies of waste disposal operations such as
9 dates and times when contaminants were deposited in
10 the Hadnot Point landfill or descriptions of the
11 temporal variation of contaminant concentrations in
12 the subsurface generally were not available at
13 Hadnot Point", right?

14 A. That's what it says, yes.

15 Q. Okay. And you agree that historical --
16 quote, historical reconstruction, as used in the
17 paragraphs, had to include testing source
18 locations, varying concentrations, and beginning
19 and ending dates for leakage and migration of
20 source contaminants to the subsurface and the
21 underlying groundwater flow system?

22 A. That would be the calibration process.

23 Q. You'd agree that a comprehensive
24 uncertainty analysis wasn't done at Hadnot Point
25 because, as it states in the paragraph, "lengthy

1 simulation times and substantial data limitations
2 were computationally prohibited" --

3 A. Yes.

4 Q. "Prohibitive."

5 A. Yes, that's what it says.

6 Q. ATSDR did a sensitivity analysis, but
7 it said, results should not be considered or
8 interpreted as results of a robust and
9 comprehensive uncertainty analysis, correct?

10 A. Yes.

11 MR. DEAN: Object to the form.

12 BY MR. ANWAR:

13 Q. And your answer was yes, right?

14 A. Yes, I'm confirming what -- you read it
15 from the report.

16 Q. It's the last sentence of the last
17 paragraph. So ATSDR did a sensitivity analysis,
18 but said its results should not be considered or
19 interpreted as the results of a robust and
20 comprehensive uncertainty analysis, right?

21 MR. DEAN: We can stipulate you read
22 that sentence correctly.

23 BY MR. ANWAR:

24 Q. And you agree with that, right?

25 MR. DEAN: Object to the form.

1 THE WITNESS: It can be considered
2 qualitative. That's what we say in here, okay? We
3 did conduct sensitivity analyses.

4 BY MR. ANWAR:

5 Q. Let's jump ahead -- or let's jump to --
6 back to Supplement 6 -- or we are on Supplement 6.

7 A. Yes.

8 Q. So let's turn to page 44, S6.44.

9 A. 44, okay.

10 Q. So the page before.

11 A. Okay.

12 Q. On page S6 there is a Figure S6.23,
13 correct?

14 A. Yes.

15 Q. And the figure is titled "variations in
16 reconstructed simulated finished water
17 concentrations of TCE derived using a Latin
18 hypercube sampling methodology on water-supply well
19 monthly operational schedules for Hadnot
20 Point/Holcomb Boulevard study area", correct?

21 A. Yes.

22 Q. Okay. This is the -- the -- the figure
23 for the uncertainty analysis on the Hadnot
24 Point/Holcomb Boulevard model, right?

25 A. Yes, at the water treatment plant.

1 Q. Okay. At the water treatment plant.

2 And agree that the results of this
3 uncertainty analysis at the Hadnot Point water
4 treatment plant where reconstructed monthly well
5 operations -- okay. Let me ask that again.

6 You agree that the results of the
7 uncertainty analysis here were -- for reconstructed
8 monthly well operations schedules were varied?

9 A. Yes.

10 Q. And this -- this reflects the -- the
11 water-supply well monthly operational schedules,
12 correct?

13 A. Yes.

14 Q. It's an uncertainty analysis about the
15 water-supply well monthly operational schedules,
16 correct?

17 A. That is correct.

18 Q. Okay. And the uncertainty analysis
19 shows -- the uncertainty analysis was varied,
20 right?

21 MR. DEAN: Object to the form.

22 THE WITNESS: I'm not sure I understand
23 what you mean by the uncertainty analyses was
24 varied.

25 BY MR. ANWAR:

1 Q. The results of the uncertainty analysis
2 were varied, correct?

3 MR. DEAN: Object to the form.

4 THE WITNESS: The results were not
5 varied.

6 BY MR. ANWAR:

7 Q. I thought a moment ago you agreed they
8 were varied.

9 MR. DEAN: Object to the form.

10 THE WITNESS: You asked me about the
11 water-supply wells.

12 BY MR. ANWAR:

13 Q. Okay.

14 A. That's the parameter that was varied.

15 Q. Okay. Understood. Ah, yeah. And
16 you'd agree -- so let me -- just so the record is
17 clean, agree this -- the -- this uncertainty
18 analysis at Hadnot Point is where reconstructed
19 monthly well operations schedules were varied,
20 correct?

21 A. Yes.

22 Q. Okay. Thank you. And you agree that
23 the results of this uncertainty analysis suggests
24 that changes in pumping schedules produce very
25 different modeled monthly mean contaminant

1 concentrations, right?

2 MR. DEAN: Object to the form.

3 THE WITNESS: There's variation from
4 the mean to the high or low.

5 BY MR. ANWAR:

6 Q. There's significant variation, right?

7 MR. DEAN: Object to the form.

8 THE WITNESS: I don't know if I would
9 call it significant. If you compare it to the data
10 spread, it's not -- it's greater than at Tarawa
11 Terrace.

12 BY MR. ANWAR:

13 Q. You agree it is greater than Tarawa
14 Terrace, right?

15 A. Yes, but we still considered it to meet
16 our modeling objectives.

17 Q. You'd agree this was a Monte Carlo
18 simulation like in Tarawa Terrace, but unlike
19 Tarawa Terrace, only the one input parameter, well
20 pumping schedule, was varied, correct?

21 A. It was a Latin hypercube sampling,
22 which is a variant of Monte Carlo simulation when
23 Monte Carlo simulation becomes computationally
24 prohibitive. So it is a Monte Carlo, but it's
25 Latin hypercube sampling.

1 Q. A moment ago we were talking about the
2 degree of variation. Would you agree that the
3 variation is hundreds of micrograms per liter?

4 A. Once -- you're talking about the
5 reconstructed results or the sampling data?

6 Q. The -- the reconstructed results.

7 A. Once HP651 kicks in, yes, after July --
8 I think June or July of '72.

9 Q. That's where you see the -- on the
10 figure, Figure S623, dot 23, it spike up, correct?

11 A. Yes.

12 Q. Now, looking at this Figure S6.23, you
13 would agree the gray line show all of the Monte
14 Carlo simulations drawn on the same chart?

15 MR. DEAN: Object to the form of the
16 question.

17 THE WITNESS: They -- they show all the
18 Latin hypercube sampling results on -- on this
19 graph.

20 BY MR. ANWAR:

21 Q. Why not show the 95 percent realization
22 balance like ATSDR did for Tarawa Terrace?

23 A. It was not -- with Latin hypercube you
24 -- you had -- in this case we used ten equal
25 subdivision or sampling points, okay? That's the

1 definition of Latin hypercube, is you have an equal
2 probability within each sampling domain, which we
3 had ten. And so it was just not possible to
4 compute a confidence limit, but -- using -- using
5 that approach.

6 Q. Okay.

7 A. But it did give us both a quantitative,
8 in terms of high/low, and qualitative feeling of
9 the model results at the water treatment plant.

10 Q. Got it. I think we are in the home
11 stretch, about 40 minutes left, probably 40, 45.
12 Why don't we take a quick five or five or ten. I
13 would like to take a look at my notes and --

14 A. Okay. Sure.

15 MR. ANWAR: Thank you.

16 THE VIDEOGRAPHER: Going off record.
17 The time is 5:10 p.m.

18 (A recess transpired.)

19 THE VIDEOGRAPHER: Okay. We are going
20 back on record. The time is 5:23 p.m.

21 BY MR. ANWAR:

22 Q. We are back on the record from a short
23 break. Mr. Maslia, are you okay to continue?

24 A. Yes, I am.

25 Q. Did you speak to your lawyers during

1 the break?

2 A. No, I did not.

3 Q. Okay. I may bounce around a little
4 bit. I wanted to ask you a few questions about
5 your rebuttal report, your opinions in your
6 rebuttal report. Dr. Spiliotopoulos pointed out,
7 for the Tarawa Terrace model, that the KD values
8 and the bulk density values for the calculation of
9 the retardation factor contained errors. Do you
10 recall that?

11 A. He pointed out that the bulk density
12 did.

13 Q. Okay. And my -- my understanding of
14 your opinions about that are essentially that you
15 don't dispute the error, but it doesn't, in your
16 opinion, change the analysis much; is that right?

17 A. It's not so much of an error. What was
18 used originally was the wet bulk density, and it
19 was pointed out to us in 2009, by one of the
20 experts on the Hadnot Point/Holcomb Boulevard panel
21 when we had sent the Tarawa Terrace report, that we
22 had a wet bulk density. So we went back and
23 changed that value and, of course, you've got to
24 understand is that in the contaminant fate and
25 transport equations, bulk density and distribution

1 coefficient are not included. What's included is
2 retardation factor, okay? And we originally had a
3 retardation factor of 2.93. So if we adjusted the
4 bulk density to drop down, that means we could
5 adjust KD up. They are compensating, okay, because
6 they are calibration -- KD is a calibration
7 parameter.

8 Q. Sure.

9 A. And that resulted in the exact same
10 retardation factor of 2.93, and it resulted in
11 identical to the decimal place concentrations that
12 we had published in the Chapter A report.

13 Q. Okay. And thank you for -- for
14 explaining that. The -- if I'm understanding your
15 testimony correctly, it's not so much that the --
16 the difference of opinion about bulk density or the
17 error, as Dr. Spiliotopoulos has described it,
18 doesn't exist; it's that it's offsetting such that
19 it doesn't impact the retardation factor?

20 A. That is correct.

21 Q. Okay.

22 A. Our retardation factor was consistent
23 -- it was identical to what it was in the published
24 report, okay, but it was also very consistent with
25 existing literature values as well for PCE in this

1 type of terrain.

2 Q. Now, the retardation factors -- excuse
3 me, the bulk density and the KD value used for
4 Hadnot Point and Holcomb Boulevard model or
5 analysis is different than the one for the Tarawa
6 Terrace model, is that --

7 A. I would like to just compare the two so
8 we're --

9 Q. Sure.

10 A. -- comparing apples to apples here. So
11 let get me to Hadnot Point. Okay. There's -- I'm
12 looking at page A41 for the Hadnot Point report.
13 Ah, here you go. So you asked about bulk density.

14 Q. Yeah, the -- let's start with bulk
15 density.

16 A. Well, yes, but, again, as I said, we
17 corrected the one that was in Chapter A once we
18 realized that was a wet bulk density. The
19 corrected value came very close to 46,700 grams per
20 cubic foot.

21 Q. Okay.

22 A. Which is what we used in the Hadnot
23 Point.

24 Q. But the values for the actual
25 calculation -- for the actual -- how you calculated

1 the retardation factor between Tarawa Terrace and
2 for Hadnot Point, can you direct me to the page
3 that you're looking?

4 A. Okay. I'm on page A41 of the Hadnot
5 Point/Holcomb Boulevard report.

6 Q. Sure.

7 A. And then also page A29 of the Tarawa
8 Terrace report.

9 Q. Okay. Okay. Let's come back to that.

10 A. Okay.

11 Q. I'm going to mark what is, I think,
12 Exhibit 20 now.

13 (DFT. EXHIBIT 20, letter dated February
14 21, 2007 from Morris Maslia to Dr. Leonard F.
15 Konikow Bates-stamped
16 CL_PLG-Expert_Konikow_0000000006 through
17 0000000021, was marked for identification.)
18 BY MR. ANWAR:

19 Q. Here you go. This -- the first page of
20 Exhibit 20 is dated February 21, 2007, correct?

21 A. Yes.

22 Q. And it is a letter from you to
23 Dr. Leonard Konikow enclosing feedback to comments
24 that Dr. Konikow had raised about the Tarawa
25 Terrace analysis, correct?

1 A. Yes, he was a peer-reviewer, external
2 peer-reviewer --

3 Q. Okay.

4 A. -- on that particular chapter for
5 Tarawa Terrace.

6 Q. Now, these -- these responses to
7 Dr. Konikow's concerns or what are identified as
8 major concerns were drafted by Bob Faye, correct?

9 A. Yes.

10 Q. Did you have a chance to review these
11 before they were sent out?

12 A. I -- I reviewed it. It's been a while
13 since I've seen these, but I did -- did review it.

14 Q. Would you have discussed the responses
15 with Bob Faye before they were sent back to
16 Dr. Konikow?

17 A. Not necessarily discussed it. If I had
18 an issue with the response, I may have talked to
19 him.

20 Q. Okay.

21 A. And asked him, but I typically -- my
22 approach was not to micromanage the modelers,
23 right? So since Bob Faye was the primary author on
24 Chapter F, I assume that's what this chapter is --
25 yes, then I would allow him to develop the

1 responses. And, of course, he was a subcontractor
2 to ATSDR through Eastern Research Group, so that's
3 -- that's who he would send the responses to and
4 they would provide me with a copy.

5 Q. Okay. So on -- let's call it the page
6 ending in Bates label 08.

7 A. Okay. Okay.

8 Q. Actually, let's go to 09.

9 A. Okay.

10 THE WITNESS: Do you need a copy? Do
11 you need a copy?

12 MR. DEAN: I have one.

13 THE WITNESS: Oh, okay. Okay.

14 BY MR. ANWAR:

15 Q. Number three, Dr. Konikow raised as a
16 major concern, "the reliability of the estimate of
17 the biodegradation rate constant based on the
18 assumption that concentration declines" -- excuse
19 me. Let me read that again.

20 Number three of Dr. Konikow's major
21 concerns reads, "the reliability of the estimate of
22 the biodegradation rate constant based on the
23 assumption that concentration declines observed at
24 one location over a period of several -- several
25 years can be explained solely by biodegradation."

1 Did I read that correctly?

2 A. Yes, you read that correctly.

3 Q. Okay. And it looks like Bob Faye's
4 response there was "the author never claimed that
5 the biodegradation rate computer using field data
6 was reliable or the sole reason for the observed
7 decline in PCE concentration." Did I read that
8 correctly?

9 A. Yes.

10 Q. Okay. Do -- do you agree with that
11 statement?

12 A. That's Mr. Faye's opinion as the person
13 who did the -- the model in response to
14 Dr. Konikow's question or comment, but, you know,
15 what is generally being said is that some of these
16 transport parameters, like biodegradation rate,
17 that's very limited field -- field data, and so,
18 you know, there could be any possibilities for the
19 decline in the concentration. And I think that's
20 what Dr. Konikow was raising as well.

21 Q. And the next sentence says, "rather,
22 the computed rate was presented as an approximate
23 value useful to begin model calibration." Did I
24 read that correctly?

25 A. Yes. And I would agree with that.

1 Q. So if you go on, the rest of it reads,
2 "well TT26 is located on a direct migration, slash,
3 advective pathway from the PCE source at ABC
4 One-Hour Cleaners." Did I read that correctly?

5 A. Yes.

6 Q. Do you agree with that?

7 A. Yes.

8 Q. Okay. And then it says, "to the extent
9 that migration of PCE mass towards and away from
10 supply well TT26 occurred at about equal rates
11 during 1985 to 1991, the computed degradation rate
12 of 0.00053 per day approximates a long-term average
13 degradation rate." Did I read that correctly?

14 A. Yes.

15 Q. It goes on to say, "on the other hand,
16 if a significant quantity of the PCE degraded in
17 the vicinity of supply well TT26 was replaced by
18 advection, then the degradation rate computed using
19 equation three is probably a minimum rate,"
20 correct?

21 A. Yes, that's what you read.

22 Q. Okay. And do you agree with that?

23 A. I agree with that concept, yes. He's
24 basically saying we had two data points at TT26 in
25 '85 and '91, and so that's what was used to compute

1 the initial -- to start model calibration.

2 Q. And then it goes on to say, "the report
3 does not state or indicate that the decline in PCE
4 mass at supply well TT23 is due entirely to
5 biodegradation rate -- biodegradation. Rather, the
6 report indicates that the computed first-order
7 degradation rate is an estimate used as a basis to
8 begin model calibration," correct?

9 A. Yes. It's important to understand that
10 the value that we ended up for the calibrated rate,
11 which is five times ten to the minus four per day,
12 0.0005, compares extremely favorably with the
13 values that Dr. Clement came up with in his model
14 for his paper.

15 Q. That who came up with?

16 A. Dr. Clement.

17 Q. Okay. And you're talking about the
18 Dover Air Force Base model?

19 A. Yes, yes, very similar lithology. We
20 did have a gravel zone in there, but, again, he
21 came up with -- I think it was somewhere around one
22 to four times ten to the minus four. I would have
23 to look at the paper and see.

24 Q. That's okay.

25 A. But that's, you know...

1 Q. I wanted to turn your attention to the
2 Bates page ending now in 15.

3 A. Yeah, could I just make sure I gave you
4 the right numbers?

5 Q. Sure.

6 A. Here we go. Okay. Here you go. The
7 estimated -- the field estimated apparent reaction
8 rates range from 3.5 to seven times ten to the
9 minus four per day for PCE, and we're smack dab in
10 the middle with five times ten to the minus four.

11 Q. Let's turn to the page ending in 15.

12 A. Okay.

13 Q. There is a comment about -- towards the
14 bottom of -- about mass loading. Starting page 59,
15 it says, "mass loading, disagree, see my comments
16 under major concerns item five. The reviewer seems
17 to assign a high degree of accuracy and credibility
18 to the PCE mass computation that is unwarranted."
19 Did I read that correctly?

20 A. Yes.

21 Q. And then it says, "as explained
22 previously, the computation of PCE mass was highly
23 interpretive and somewhat subjective process
24 frequently based on questionable data." Did I read
25 that correctly?

1 A. Yes.

2 Q. Do you agree with that?

3 A. Not necessarily. We had data from ABC
4 Dry Cleaners, PCE data, and we used a technique
5 that was published in Groundwater journal that's
6 documented in the Chapter E and the Chapter F -- F
7 report in -- the key fact takeaway, and I mentioned
8 this in -- I believe it was my expert report, is
9 that the mass computed using the field data and the
10 mass determined from the MT3DMS model were the same
11 order of magnitude, which gave us -- it's almost
12 another calibration check, okay?

13 Q. The comment goes on to say, "field data
14 applied to the PCE mass computation were limited
15 both spatially and vertically," right?

16 A. Right.

17 Q. And that's a true statement, right?

18 A. That is. They were limited, but they
19 were still field data available.

20 Q. And then, "the computation was
21 accomplished regardless of data limitations to
22 provide an estimate of a minimum mass loading rate
23 to begin model calibration." Did I read that
24 correctly?

25 A. Yes.

1 Q. Okay. Now, for the Tarawa Terrace
2 model, ATSDR assumed mass loading on January 1,
3 1953, correct?

4 A. That is correct.

5 Q. And I think, was it -- without pulling
6 up the report, was it 1300 -- or no, 1200?

7 A. That was the calibrated value, is 1200.
8 We started at 200. And again, that is a
9 calibration parameter that you're free to adjust
10 during the model calibration process. We're
11 adjusting, you know, conductivity. You're
12 adjusting reaction rate. You're adjusting a number
13 of parameters. And so it was adjusted and the best
14 fit value came up to, I believe, 1200 grams per
15 day.

16 Q. Okay. And I understand that DOJ's
17 expert has offered a -- well, let me -- let me ask
18 you this: You reviewed Dr. Spiliotopoulos's
19 report, correct?

20 A. Yes.

21 Q. Okay. And you saw that his opinion
22 that the -- the later start date for ABC Cleaners,
23 correct?

24 A. Right, correct.

25 Q. Of July 1954, correct?

1 A. That is correct.

2 Q. Okay. And in the ATSDR Tarawa Terrace
3 model, the start date was assumed to be January 1,
4 1953, correct?

5 A. That is correct.

6 Q. And on day one, the calibrated mass
7 loading rate is 1200 micrograms per liter, correct?

8 A. No, grams per day.

9 Q. Per day. I'm sorry.

10 A. Yeah, grams. The way it was input to
11 the model as a source loading rate, so it would be
12 grams per day.

13 Q. Thank you for that. It was assumed to
14 be a constant 1200 micrograms per day, correct?

15 A. The calibrated value.

16 Q. For Tarawa Terrace?

17 A. Yes.

18 Q. Okay. In the real world, if
19 contaminants on the surface were to start leaking,
20 would they immediately reach the aquifer?

21 A. They would within, in this case,
22 probably a couple of years.

23 Q. So in -- in -- for Tarawa Terrace it's
24 your opinion that whenever ABC Cleaners released
25 PCE into the -- onto the ground, it would have

1 taken a couple of years for it to reach the
2 aquifer?

3 A. To reach any of the supply wells
4 pumping. In other words, it would have gone
5 vertically horizontal and, of course, the -- say
6 TT26 is pumping, is putting tremendous gradient,
7 vertical gradient, down right near to the well, so
8 it would have fallen horizontal and then vertically
9 down into the well -- a well casing or a well
10 screen and been pulled -- pulled up. And the
11 assumption was, again, the engineering assumption,
12 that it started on January 1st, 1953 when ABC
13 Cleaners started operations.

14 Q. Okay. So you assumed the constant --
15 the calibrated constant mass loading rate on day
16 one, but you agree in the real world it may have
17 taken a couple of years for contaminants from ABC
18 Cleaner to actually get to the supply wells,
19 correct?

20 A. It may have, but we did not do -- you
21 would have to do an unsaturated zone modeling or
22 analysis to actually quantify that.

23 Q. Why did you-all decide to assume a
24 constant mass loading rate on day one?

25 A. Because if we did not assume a constant

1 value, that would be, to me, indicative that we
2 must have had some additional data to say that, you
3 know, it was a certain rate this day, a different
4 rate in another day, and so on. So we did not have
5 that information, so in keeping with accepted model
6 calibration practice, we assumed the constant rate
7 that we computed -- we computed initial, which was
8 a minimum value, and then through the calibration
9 process increased it using calibration to check
10 results for the available contaminant concentration
11 data at the wells.

12 (DFT. EXHIBIT 21, e-mail correspondence
13 Bates-stamped CLJA_Watermodeling_05-0000021184
14 through 0000021188, was marked for identification.)
15 BY MR. ANWAR:

16 Q. I'm handing you what I'm marking as
17 Exhibit 21.

18 A. Okay.

19 Q. I hope that's right, 21. We were just
20 talking about mass loading with respect to Tarawa
21 Terrace. I would like to shift gears to -- to sort
22 of mass loading with respect to Hadnot
23 Point/Holcomb Boulevard.

24 A. Okay.

25 Q. And this is an e-mail from Barbara

1 Anderson to you dated -- the first e-mail -- well,
2 I guess the chain, both of them, are dated
3 September 26th, 2011, correct?

4 A. It's September 26, 2011, yes.

5 Q. Okay. And this e-mail is discussing
6 mass loading of benzene, correct, or, I guess,
7 LNAPL, light non-aqueous phase liquid?

8 A. I believe this is discussing the LNAPL
9 that's dissolved because -- it says LNAPL on it, so
10 I'll leave it at that right now.

11 Q. The third paragraph states, "the first
12 scenario is a simple step function. The second
13 scenario incorporates some information we have
14 about the Hadnot Point fuel farm area and
15 conceptualizes the source strength LNAPL area as
16 increasing over time. In reality, the LNAPL
17 footprint grew and spread as the UST system leaks
18 and releases progressed. At some point in time the
19 LNAPL footprint grew to be the size that -- that GT
20 calculated from the free product data, 1988 to
21 1999, but it was not that size from the beginning
22 start date. This is shown in scenario two."

23 Did I read that correctly?

24 A. Yes.

25 Q. And do you agree with Barbara Anderson

1 that in reality the LNAPL footprint grew and spread
2 as the underground storage tank system leaks and
3 releases progressed?

4 A. Conceptually, yes, I would agree with
5 that.

6 Q. And scenario two shows a -- the leaks
7 and releases progressing over time, correct?

8 A. That is correct.

9 Q. Whereas, the scenario one is a step
10 function that shows immediate mass loading or
11 release right away, correct?

12 A. That is correct.

13 Q. And for the Hadnot Point/Holcomb
14 Boulevard model as it relates to LNAPL, ATSDR used
15 scenario one, correct?

16 A. I would have to go back and read -- the
17 LNAPL was rather complicated because we had the
18 folks at the multi-environmental simulations lab at
19 Georgia Tech looking at the volume and then the
20 movement within the saturated zone to the water
21 table. And then we had the other people, like
22 Barbara and Mr. Elliott Jones, who did the fate and
23 transport part, looking at it moving the water
24 table.

25 So I would have to go back and -- and

1 look at how each one characterized the mass loading
2 rate or the source -- source rate and -- but I know
3 Barbara was our data analyst, and I think the task
4 here was to look at two different
5 conceptualizations for how mass loading at the
6 Hadnot Point industrial area and fuel farm could
7 have occurred.

8 Q. Okay. And scenario two is more
9 realistic, right, in the real world?

10 MR. DEAN: Object to the form.

11 THE WITNESS: Again, that's -- I think
12 that's an data analysis engineering call as to what
13 it could be.

14 BY MR. ANWAR:

15 Q. Okay.

16 A. You know, where it's almost -- you'd
17 have to run a sensitivity analyses on here and see
18 which one provided you closer agreement.

19 Q. Okay. As you, Mr. Maslia, sit here
20 today, are you planning to amend or supplement your
21 expert report in the case?

22 A. Well, we mentioned about the geometric
23 bias. I don't know if that amends my report or --
24 and we included that extra paper reference --

25 Q. Okay.

1 A. -- from Clement, so that definitely, I
2 think, should be in there. And, you know, I don't
3 have any intentions of any major changes based on
4 additional modeling that I'm -- I'm doing. I'm not
5 planning on doing any.

6 Q. When you say no intent on major
7 changes --

8 A. Right.

9 Q. -- are you planning to -- and when I
10 say supplemental disclosure, are you planning to
11 provide, like, another written document with
12 additional or updated opinions --

13 MR. DEAN: So --

14 BY MR. ANWAR:

15 Q. -- major or minor?

16 MR. DEAN: Let me -- let me take over
17 here and answer for the witness, if it's okay. And
18 that is, as you know, DOJ recently belatedly
19 produced a bunch of photos from Dr. Hennet without
20 any sort of a disclosure of what it is. So we
21 can't respond to our experts until we sort of know
22 some explanation as to what that is. So that could
23 potentially, depending on Mr. Hennet's deposition,
24 trigger something from him, but he nor any of our
25 experts at this time can answer your question about

1 additional thoughts or opinions or whatever. And,
2 of course, there's been some correspondence about
3 this. Mr. Bain has sent a letter and we've
4 responded. So we just -- he's reserving that right
5 as to that stuff.

6 MR. ANWAR: Okay. Well, we will wait
7 to see -- we'll wait to receive the documents
8 related to the geometric bias and we will reserve
9 our right to keep the deposition open or to reopen
10 it. And I think I only have a few minutes left, so
11 thank you for your time. I'll reserve those final
12 minutes. Thank you for your time today.

13 THE WITNESS: Okay. Thank you.

14 MR. DEAN: Okay. Let's go off the
15 record, if it's okay, for maybe about ten minutes.
16 Take a break. Let me get my thoughts together.
17 I've got some questions. They won't be long, but
18 I've got a few questions.

19 THE VIDEOGRAPHER: Okay. Going off
20 record. The time is 5:56.

21 (A recess transpired.)

22 THE VIDEOGRAPHER: Okay. We are going
23 back on record. The time is 6:15 p.m.

24 EXAMINATION

25 BY MR. DEAN:

1 Q. All right. Mr. Maslia, I just have a
2 few questions, so I don't think we'll be long,
3 okay?

4 A. Okay.

5 Q. Oh, there we go. So earlier you were
6 shown Exhibit 9, which is the Chapter A Tarawa
7 Terrace report, and I want to ask you if you can
8 look at your version and turn to page -- I believe
9 it's A -- excuse me. You were shown Chapter C.

10 A. Hadnot Point?

11 Q. Hadnot Point, page C98. So it looks
12 like it's Chapter C.

13 A. Yeah, I'm trying to find...

14 Q. Can you tell me what that exhibit
15 number was?

16 MS. SILVERSTEIN: 17.

17 THE WITNESS: I've got Exhibit 17.

18 BY MR. DEAN:

19 Q. Okay. So take a look at Exhibit 17;
20 put it in front of you.

21 MR. ANWAR: What page are you on?

22 MR. DEAN: Page C98.

23 THE WITNESS: Okay. C98. Okay. I'm
24 at C98.

25 BY MR. DEAN:

1 Q. Do you remember Mr. Anwar asking you
2 quite a few questions about the sampling for
3 benzene at Hadnot -- or HP602?

4 A. Yes, I do.

5 Q. Okay. And y'all went over -- spent
6 quite a while on reviewing those different sampling
7 results. Do you remember that?

8 A. Yes.

9 Q. Now, can I have exhibit number --
10 MR. DEAN: Do we just want to continue
11 the same number sequence?

12 MR. ANWAR: Whatever you want, yes.

13 (DFT. EXHIBIT 22, Appendix A5
14 Bates-stamped CLJA_Watermodeling_010000942748
15 through 0000942750, was marked for identification.)
16 BY MR. DEAN:

17 Q. I'm just going to use this just to
18 shortcut it. I believe it's the end of -- this is
19 Appendix I-5, Exhibit 22.

20 A. Okay. That's from the Chapter A report
21 for Hadnot Point/Holcomb Boulevard.

22 Q. Correct. Now, you -- you were also
23 asked some questions about the same time -- y'all
24 were having a discussion about when the well was on
25 and when was well was off. Do you remember that?

1 A. Yes.

2 Q. Okay. Can you explain to me as it
3 concerns those sampling that was done post-turning
4 off of the well, what the significance would be for
5 those test results as it concerns the existence of
6 the continuing contamination?

7 MR. DEAN: Object to the form.

8 THE WITNESS: Well, what these plots
9 show, show early time, '51, the contamination in
10 '68, the wells are pumping. November '84, the
11 wells are pumping and shut off. And then it shows
12 the plume -- this is the benzene plume, I believe,
13 yes, benzene. It still shows it migrating under
14 the hydraulic gradient, which is heading east to
15 northwest, okay?

16 Q. Okay. And what is the significance of
17 that with regard to the validity of any of the
18 either calibration or contaminant testing
19 concentrations after the well was shut off?

20 MR. DEAN: Object to the form.

21 THE WITNESS: What that indicates to
22 me, and I think we had this discussion, is even
23 though the tables that we have based on information
24 provided by the Marine Corps for the Navy shows a
25 well shut off, if you're still observing benzene

1 concentrations in the water treatment plant, there
2 had to be some wells pumping, okay? Maybe not
3 continuously, but the plume is still moving past
4 the well. I'm looking at well -- well 602 there,
5 and even in 2008 there's still a plume over there.
6 So if that well was ever turned on again, even
7 though it says out of service, you would -- it
8 would -- you would get benzene.

9 Q. Sorry.

10 A. This is similar to what we observed at
11 Tarawa Terrace with TT26, and even though they shut
12 down TT26, the plume kept moving.

13 Q. Okay. And were samples taken for
14 concentrations in the area of the wells after those
15 wells were shut down?

16 A. Were they?

17 Q. Yes.

18 A. I would have to look and see on the
19 Chapter C report.

20 Q. Now, the Prabhakar Clement article that
21 was previously -- I believe it was marked as an
22 exhibit, the 2000 paper.

23 A. Yes, that one.

24 Q. Okay. Exhibit 1.

25 A. Okay.

1 Q. When did you locate that paper?

2 A. I would say within the last six months.

3 Q. When you were giving your 2010
4 deposition and responding to a question from the
5 plaintiff's lawyer in that case -- well, strike
6 that.

7 Before I go there, who was defending
8 you during that 2010 deposition?

9 A. Mr. Adam Bain from the Department of
10 Justice.

11 Q. Okay. And did you meet with him and
12 prepare for that deposition in -- in -- either by
13 phone or in person?

14 A. I met with him in the afternoon along
15 with attorneys for CDC's Office of General Counsel
16 on the 29th, the day before, for a few hours in the
17 afternoon.

18 Q. Okay.

19 A. And since I had never been deposed
20 before, he went over the ground rules and --

21 Q. And during that meeting or any other
22 conversations y'all had, did Mr. Bain ever question
23 the validity of your work at -- for which you were
24 about to testify to?

25 A. No, he did not.

1 Q. Now, you -- he asked -- excuse me, not
2 he. The plaintiff's lawyer in that case asked a
3 question to which you responded something -- I'm
4 using the word mob, do you remember that?

5 A. Yes.

6 Q. Referring to the work or some of the
7 work that was done here. Were you aware at -- in
8 2010, or had you seen Dr. Clement's paper at that
9 time?

10 A. I had not seen this particular journal
11 article.

12 Q. All right. I'm going to show you
13 Exhibit 23.

14 (DFT. EXHIBIT 23, Author's reply by T.
15 Prabhakar Clement from Ground Water,
16 January-February 2012 Bates-stamped
17 CLJA_Watermodeling_010000092109 through 0000092111,
18 was marked for identification.)

19 MR. ANWAR: And I'm just going to note
20 for the record that conversations that took place
21 when you were an employee of ATSDR and the
22 Department of Justice are privileged.

23 THE WITNESS: Okay.

24 MR. DEAN: And I'm not sure I agree,
25 but I don't think it matters, just for the record.

1 You know what, I don't think I have an extra copy
2 of this. I'll show it to you. I don't have an
3 extra copy of it.

4 MR. ANWAR: I have a copy.

5 MR. DEAN: It's the response to...

6 BY MR. DEAN:

7 Q. So I'm going to show you Exhibit No.
8 23. And can you tell me what that document is?

9 A. This looks like Dr. Clement's response
10 to our editorial review or editorial comment on his
11 2010 paper about hindcasting.

12 Q. And can you read the first -- let me
13 see. I think it's just the first full sentence.

14 A. I believe I've got a copy if you want
15 me to just use my copy and then...

16 Q. Yes, it's -- it's actually the first
17 full sentence. It's a rather long sentence, but...

18 A. Yeah, I got --

19 Q. You can just use this one.

20 A. Oh, okay. Okay. Okay.

21 Q. Can you read into the record --

22 A. The first full sentence?

23 Q. Yes, sir. Now, let's give it a little
24 context. What is Dr. Clement responding to?

25 A. Dr. Clement published an article in

1 Groundwater, in the same journal, I believe it was
2 in 2010, about basically hindcasting, historical
3 reconstruction to us, when is enough enough, and
4 used the Camp Lejeune project as a case study or an
5 example.

6 Q. Okay. And who is Dr. Clement as it
7 concerns his relationship with any of the Camp
8 Lejeune work? What -- what role, if any, did he
9 play at any point in time with regard to Camp
10 Lejeune work?

11 A. Dr. Clement was the hydrogeologist and
12 modeler expert on the National Research Council
13 that assessed ATSDR's Camp Lejeune work.

14 Q. So when people refer to the 2009 NRC
15 report, he was the water modeler that was -- served
16 as one of those panel members?

17 A. He was the only water modeler.

18 Q. Okay. So later on he must have written
19 an article in 2010 about additional information
20 about Camp Lejeune?

21 A. Yes.

22 Q. Okay. And can you read into the record
23 what he said in his response to ATSDR's response?

24 A. Okay. In the response to our
25 editorial.

1 Q. Yes.

2 A. Okay. "The goal of my article was not
3 to review the Camp Lejeune, in parentheses, CLJ,
4 modeling studies." Do you want me to continue?

5 Q. You can -- you can read the next line.

6 A. Okay. "Rather it was to use the CLJ
7 problem as an example to highlight issues related
8 to model complexities and to speak -- and to spark
9 an open debate on when, where, and why we should
10 limit model complexity."

11 Q. Okay. Now, you spent a lot of time,
12 both you and Mr. Anwar, using a word,
13 "uncertainty?"

14 A. Yes.

15 Q. Okay. And of course, lawyers and the
16 general public may use the word "uncertainty"
17 differently than water modelers; is that correct?

18 A. Yes.

19 Q. So what -- when you were referring --
20 using the word with -- uncertainty in responding to
21 questions that used the word "uncertainty", can you
22 explain to the Court and jury what is an
23 uncertainty -- what is uncertainty definition or an
24 uncertainty analysis as you're using it in this
25 deposition?

1 A. I'm using it in this deposition and the
2 modeling analyses.

3 Q. Is uncertainty unusual in water
4 modeling work?

5 A. Not at all.

6 Q. And explain that to the Court, sir.

7 A. Again, that -- that was -- I'll say
8 that was one of our primary concerns and
9 disagreement with the NRC report because it -- it
10 described the uncertainty about data about
11 modeling. We never disagreed that there was
12 uncertainty. An example being you have a sample
13 measurement and, you know, you can have a lower
14 value or a higher value. And so the uncertainty
15 would be that range in there in terms of numerical
16 analysis, like Monte Carlo gives you upper band, a
17 mean, and a lower band. And so that band is the
18 uncertainty or the confidence, okay? So when we're
19 talking about uncertainty, we're also talking about
20 the confidence that we have in the results.

21 Q. Okay. And you expect to see the word
22 "uncertainty" in any -- everyday garden variety of
23 water modeling project?

24 MR. DEAN: Object to form.

25 THE WITNESS: They should. If you look

1 at some of the earlier modeling procedures or
2 protocols of models -- when I say earlier, prior to
3 1980, prior to 19 -- you might see sensitivity
4 analysis and that's part of uncertainty analysis,
5 but good modeling practice would include both
6 sensitivity analysis and an uncertainty analysis.

7 BY MR. DEAN:

8 Q. All right. Let's go to one other area
9 real quick. I don't know the exhibit number. It's
10 the e-mail related to the disclaimer.

11 A. Oh, okay. Here, 11.

12 Q. Okay.

13 MS. SILVERSTEIN: The e-mail is
14 Exhibit 13.

15 THE WITNESS: Here you go. 13.

16 BY MR. DEAN:

17 Q. 13, yes.

18 A. The exhibit is 12.

19 Q. Yeah, the disclaimer. So with regard
20 to Exhibits 12 and 13 having to do with this issue
21 that arose, it appears, in May of 2007, do you
22 remember having a conversation of questions back
23 and forth with Mr. Anwar?

24 A. Yes, I do.

25 Q. Okay. And -- but I didn't hear him

1 ask, nor did I -- or maybe I missed it, but did you
2 -- did someone reach out to you and complain or did
3 some -- something come to you from another
4 department or agency upset about what was being
5 posted on the website that generated the need for a
6 disclaimer on the website?

7 MR. DEAN: Object to form.

8 THE WITNESS: I recall that it was
9 conveyed to me in the source sent to me, the
10 Department of Navy, where or who -- I'm not sure,
11 it could have been a representative at Camp Lejeune
12 that -- my point of contact, but the message was
13 that the Navy was upset about anyone being able to
14 access values on the ATSDR website.

15 Q. And calculate for their own benefit
16 specific numbers?

17 A. Yes, yes, yes.

18 Q. Okay. So up until the time, based on
19 your information from a source that it's the Navy
20 that made this complaint, there was not any
21 consideration for the need for a waiver; is that
22 fair?

23 MR. DEAN: Object to form.

24 THE WITNESS: We -- we did not have
25 that in our protocol so to speak --

1 BY MR. DEAN:

2 Q. Sure.

3 A. -- that we needed to put up a
4 disclaimer.

5 Q. It still today doesn't show up in the
6 written published reports, bound, produced reports,
7 other than on the website?

8 A. No, no, it does not appear in the
9 reports.

10 Q. And when you were communicating with
11 the lawyer about a form of a disclaimer,
12 Ms. Deborah Tress in May 2007, do you know whether
13 or not she was communicating with Adam Bain and the
14 Department of Justice at the same time with regard
15 to this disclaimer?

16 MR. DEAN: Object to form.

17 THE WITNESS: I do not know. We were
18 just told --

19 BY MR. DEAN:

20 Q. And for the record, Ms. Deborah,
21 Debbie, Tress, she's a lawyer, in-house lawyer,
22 employed by the federal government working for the
23 ATSDR CDC in-house counsel?

24 A. At the time of that e-mail, she was the
25 CDC in the CC Office of the General Counsel and we

1 were told she would be the one handling any Camp
2 Lejeune-type issues.

3 Q. Okay.

4 A. From a legal standpoint.

5 Q. So late this afternoon, probably in the
6 last hour or so, you answered some questions with
7 regard to timing of contaminants to Tarawa Terrace
8 TT26. Do you remember that?

9 A. Yes.

10 Q. And I believe it is Alex
11 Spiliotopoulos's report where he has some
12 suggestions and a graph where he has the
13 contaminants going -- instead of going through the
14 water column, dropping into the ground -- are you
15 familiar with what I'm referring to?

16 A. Yes, I am.

17 Q. Okay. How is the most reasonable way
18 in which you expect contaminants that get into the
19 water column -- are they going to continue in the
20 water table or are they going to drop in the
21 ground, is my first question?

22 A. Well, they're going to go along a
23 pathway, a horizontal pathway. And as I put in my
24 rebuttal report and Dr. Konikow explained, they'll
25 -- they'll go horizontally almost until they reach

1 the well, and that's because you've got a cone of
2 depression around the well as the well is pumping,
3 and then go very rapidly vertically into the --
4 into the well.

5 Q. And scientifically, why does -- why --
6 why is that? Why does that occur, in your opinion?

7 A. Because the groundwater is -- velocity
8 is flowing with the gradient. So the gradient is
9 decreasing or the water level is decreasing as you
10 approach the well.

11 Q. Okay. And is the contaminants -- is
12 the -- traveling in the water table versus reaching
13 the well itself, is one faster than the other?

14 A. Yes, the -- the last, let's call it,
15 the few -- few feet or where the cone of depression
16 of the well is going to much more rapidly pull in
17 any contaminants, and the time is going to be much
18 more shortened because of the high velocities at
19 the well and within the cone of depression.

20 Q. I'm sorry. My dog is -- they can't
21 find my -- my wife can't find my dog, so I told her
22 where he was at.

23 Okay. Let's give this back.

24 A. Okay.

25 Q. Between the time -- when did you --

1 remind me when you retired?

2 A. December 31st, 2017.

3 Q. Okay. When you retired on January the
4 -- January of 2018 until the unfortunate time when
5 I gave you a call in '22, did you do any work on
6 Camp Lejeune during that time frame?

7 A. No, I did not.

8 Q. Okay.

9 A. Nor did I speak to anyone.

10 Q. Okay. Let me ask a -- the timing
11 question, let me ask one last different way. For
12 purposes of the timing of contaminants to reach the
13 aquifer, is that different from the time for it to
14 reach the water table?

15 A. Well, conceptually, the aquifer in
16 Tarawa Terrace that we modeled starts at the water
17 table, okay? And we didn't look at -- we didn't on
18 MODFLOW, MT3DMS, did not look above the water
19 table. It was maybe about 10 feet, 15 feet of
20 saturated zone. And so we looked at everything --
21 all our models assume it's at the water table, and
22 that the timed travel through the unsaturated zone,
23 so typically down vertically, would be minimal.

24 MR. DEAN: All right. I believe that's
25 all the questions I have. Thank you.

1 MR. ANWAR: I just have a couple of
2 follow-up questions in my --

3 THE WITNESS: Sure.

4 MR. ANWAR: -- few remaining minutes.

5 EXAMINATION

6 BY MR. ANWAR:

7 Q. Mr. Dean showed you, I think, what was
8 marked as Exhibit 22.

9 A. Yes.

10 Q. If you would like to take a look. My
11 only question about this is Exhibit 22 is the
12 depiction of plumes at Hadnot Point -- the
13 contaminant plume at Hadnot Point, correct?

14 A. Yes, yes, yes. It's the -- you're
15 talking about benzene?

16 Q. For the benzene plume, correct?

17 A. Yes, yes. Let's see, what -- what page
18 you're on?

19 Q. It's A146.

20 A. A146. Okay. Okay. I'm there.

21 Q. My only question about it is that what
22 we're seeing here is a visual depiction of the
23 reconstructed plume based on the model, right?

24 A. That is correct.

25 Q. Okay. I'm going to mark one exhibit.

1 (DFT. EXHIBIT 24, e-mail correspondence
2 Bates-stamped CLJA_ATSDR_BOVE-0000108607 and
3 0000108608, was marked for identification.)

4 BY MR. ANWAR:

5 Q. I'll hand it to you, Exhibit 23. 24.
6 I'm sorry. Let me fix that. I can't count. I
7 will represent to you this is an e-mail exchange
8 that starts between you and Dr. Clement and then
9 that you forward on to the ATSDR team in February
10 of 2008. Would you agree with that?

11 A. Yes.

12 Q. Okay. And in the -- the e-mail
13 exchange -- the e-mail from Clement, Dr. Clement,
14 to you at the bottom of the chain, he's offering
15 some -- some -- his sort of feedback and some
16 compliments about the work that you-all did with
17 respect to the Tarawa Terrace analysis, correct?

18 A. It does not specifically say Tarawa
19 Terrace. However, given the date of that, it would
20 have been Tarawa Terrace because we would not have
21 probably even started on Hadnot Point.

22 Q. Sure. And the subject says sensitivity
23 analysis on well --

24 A. Oh, okay. Okay.

25 Q. -- TT26, right?

1 A. Okay. Yes.

2 Q. Okay. And he says, "yesterday I read
3 most of your report and I found them to be very
4 thoughtfully organized. It is a complex problem,
5 but you guys did the best possible job a modeler
6 can. They are lucky to have you guys as a modeling
7 team. Thanks for your support." Did I read that
8 right?

9 A. Yes.

10 Q. Okay. And then you forward it to your
11 team and you say, "look at the second paragraph
12 from Dr. Clement, a member of the National Research
13 Council committee on contamination of drinking
14 water at Camp Lejeune. It's nice to get words of
15 praise from unbiased and technically competent
16 colleagues about our abilities and work." Did I
17 read that correctly?

18 A. Yes.

19 Q. Okay. And I understand that
20 subsequently the NRC report was published, correct,
21 in 2009?

22 A. That's correct, that's correct.

23 Q. And after the NRC report, Dr. Clement
24 published his -- his article on hindcasting, and
25 then you-all -- you and Dr. Aral and the ATSDR team

1 had a response, and then he published sort of a
2 response to your response, correct?

3 A. Right, that's correct.

4 Q. Okay.

5 A. That's typically what's done in the
6 journal article type.

7 Q. Sure. Do you -- in your view, as you
8 sit here today, is Dr. Clement still an unbiased
9 and technically competent colleague?

10 MR. DEAN: Object to the form.

11 THE WITNESS: Yes, I never -- I never
12 said he was biased. We always said it was the NRC
13 report, the final -- the final report. Again, I
14 think we discussed this in my previous deposition,
15 that that is what really caught the entire team by
16 surprise because we were providing information and
17 data to Dr. Clement. I think we also provided it
18 to Dr. Knuckles and some other people.

19 Q. Sure.

20 A. And the feedback was this is, you know,
21 great -- great stuff, great job and all of that.
22 And the report -- and especially the -- I guess,
23 what is it, the public summary or whatever, really
24 just took a 180-degree opposite turn.

25 Q. Okay.

1 A. Okay.

2 MR. ANWAR: Those are all the questions
3 I have. Thank you.

4 EXAMINATION

5 BY MR. DEAN:

6 Q. Mr. Maslia, he's -- I'm just focusing
7 on Exhibit 24, and Mr. Anwar is pointing out the --
8 your use of the word "unbiased" --

9 A. Right.

10 Q. -- with respect to the reference to
11 Dr. Clement on February 21st, 2008. Do you see
12 that?

13 A. Yes, I do.

14 Q. At the time that e-mail was sent and
15 words that you're issuing, the NRC report had not
16 been issued yet, right?

17 A. Yes, you're correct.

18 Q. And it had not been issued until July
19 -- I think it's July 2009.

20 A. June 2009.

21 Q. June 2009. Have you now read Susan
22 Martel's deposition and all of the exhibits that
23 are attached to it?

24 A. Yes.

25 Q. And do you have an opinion as to

1 whether or not the NRC was, in fact, biased or
2 unbiased in the issuance of that final report?

3 A. The NRC report, I believe, contained
4 numerous -- numerous -- it contained -- it
5 contained mistakes, mischaracterizations, and it
6 appeared to us to be -- and I'm talking about the
7 project team, including the epidemiologists and
8 whatever toxicologist, that it was a biased report.

9 MR. DEAN: Thank you. I have no
10 further questions.

11 MR. ANWAR: Nothing from me. Thank
12 you.

13 THE WITNESS: Thank you.

14 THE VIDEOGRAPHER: Okay. Then we're
15 going off record the time is 6:49 p.m. This
16 concludes today's deposition.

17 (The witness, after having been advised
18 of his right to read and sign this transcript, does
19 not waive that right.)
20
21
22
23
24
25

CERTIFICATE OF REPORTER

I, Lauren A. Balogh, Registered Professional Reporter and Notary Public for the State of South Carolina at Large, do hereby certify that the foregoing transcript is a true, accurate, and complete record.

I further certify that I am neither related to nor counsel for any party to the cause pending or interested in the events thereof.

Witness my hand, I have hereunto affixed my official seal this 18th day of March, 2025 at Myrtle Beach, Horry County, South Carolina.



Lauren A. Balogh
My Commission expires
March 19, 2030

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IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF NORTH CAROLINA
SOUTHERN DIVISION
Civil Action No. 7:23-cv-00897

IN RE: CAMP LEJEUNE WATER LITIGATION

THIS DOCUMENT RELATES TO:
ALL CASES

VIDEOTAPED

DEPOSITION OF: MORRIS MASLIA

DATE: March 13, 2025

TIME: 9:14 a.m.

LOCATION: BELL LEGAL GROUP
219 North Ridge Street
Georgetown, SC

TAKEN BY: Counsel for the Defendants

REPORTED BY: Lauren A. Balogh, RPR

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13 Deanna Havai, Motley Rice

14 (Via videoconference)

15 Alex Spiliotopoulos

16 (Via videoconference)

17 Timothy Thompson

(Via videoconference)

18 Bill Williams (via videoconference)

19
20
21 (INDEX AT REAR OF TRANSCRIPT)
22
23
24
25

1 THE VIDEOGRAPHER: The following will
2 be the videotaped deposition of Morris Maslia in re
3 Camp Lejeune Water Litigation versus United States
4 of America, File No. 7-23-CV-897. Today's date is
5 March 13th, 2025 and the time is 9:14 a.m. We are
6 here today at 219 Ridge Street, Georgetown, South
7 Carolina. The court reporter is Lauren Balogh and
8 the videographer is Jon Landau.

9 At this time I will ask all attorneys
10 present to please state their names and whom they
11 represent for the record.

12 MR. DEAN: Good morning. Kevin Dean
13 here on behalf of the PLG and the witness.

14 MR. BELL: Edward Bell on behalf of the
15 plaintiff.

16 MR. ANWAR: Haroon Anwar on behalf of
17 the United States.

18 MS. SILVERSTEIN: Kaylie Silverstein on
19 behalf of the United States.

20 THE VIDEOGRAPHER: Do you want the
21 people on the Zoom to do it?

22 MR. DEAN: It's up to you.

23 MR. ANWAR: The court reporter can take
24 it down. That's fine.

25 MR. DEAN: Yeah.

1 THE VIDEOGRAPHER: Okay. All right.
2 You may swear the witness, please.

3 MORRIS MASLIA
4 being first duly sworn, testified as follows:

5 EXAMINATION

6 BY MR. ANWAR:

7 Q. Good morning, Mr. Maslia.

8 A. Good morning.

9 Q. My name is Haroon Anwar. I am a lawyer
10 at the Department of Justice here on behalf of the
11 United States. We've met before at your prior
12 deposition in fall 2024, correct?

13 A. September 26th.

14 Q. September 26th of 2024. Thank you.

15 A. Yes.

16 Q. You may remember that experience. I'm
17 just going to go through -- go over a few rules for
18 the deposition just so we're on the same page, but
19 I'm going to ask you a number of questions today.
20 If I ask you a question that's vague or you don't
21 understand, please ask me to clarify. Otherwise,
22 I'm going to assume that you -- you understand my
23 question. Fair enough?

24 A. Fair enough.

25 Q. Okay. And the number one most

1 important rule for the deposition today, same as
2 before, is that you are under the oath to tell the
3 truth as if you were in an actual court of law. Do
4 you understand that?

5 A. Yes, I do.

6 Q. Okay. And is there any reason that
7 you'll be -- is there any reason today that you'd
8 be unable to testify truthfully?

9 A. No, there is not.

10 Q. The court reporter is transcribing
11 everything that we're taking down, so if we could
12 try not to speak over each other and perhaps give a
13 brief pause in case your lawyer needs to object, it
14 will make for a much cleaner transcript as well as
15 a much happier court reporter. Can we agree to try
16 to do that?

17 A. Yes.

18 Q. Okay. We will try to take breaks about
19 every hour. If you need to take a break sooner
20 than that, just let me know.

21 A. Okay.

22 Q. I'm happy to accommodate you. The only
23 stipulation I would put on that is if there's a
24 pending question, I would ask that you answer that
25 question and then we -- we can take a break. This

1 is not intended to be sort of a punishment, so to
2 speak.

3 A. Understood.

4 Q. So with that I wanted to start by
5 asking you what you did to prepare for today's
6 deposition?

7 A. I reviewed every single ATSDR Camp
8 Lejeune historical reproduction report that I was
9 involved with both for Tarawa Terrace, Hadnot
10 Point. I've also reviewed my expert report that
11 was submitted to you as well as my rebuttal report,
12 and I also reviewed some published journal
13 articles.

14 Q. What were the published journal
15 articles that you reviewed?

16 A. There was a series by -- that appeared
17 in Groundwater journal by Dr. Prabhakar Clement,
18 who I think you may know, and ATSDR exposure dose
19 reconstruction program staff responded to it, and
20 then they responded to -- to ours, so it's three
21 articles in Groundwater. His was 2010 and ours was
22 2012.

23 Q. Okay.

24 A. And then I've also reviewed just some
25 articles on uncertainly analysis. An article that

1 I published in 2004 on use of -- contained some
2 historical reconstruction of some smaller sites
3 using an analytical contaminant transport system
4 model and also contained the probabilistic
5 uncertainty analyses using Monte Carlo simulation.
6 So reviewed that as well as an article by
7 Dr. Clement in 2000 at Dover Air Force Base, which
8 is identical to Tarawa Terrace and came out with
9 identical values for some of the parameters, and I
10 would, in fact, like to add that to my expert
11 report if I can.

12 Q. Okay.

13 A. I've got a copy here, if you would like
14 to see that.

15 Q. Sure.

16 MR. DEAN: Yeah, I brought a copy.

17 MR. ANWAR: Thank you.

18 MR. DEAN: You're welcome.

19 BY MR. ANWAR:

20 Q. Thank you. So this -- we'll note this
21 for the record as an additional material --

22 A. Okay.

23 Q. -- on your -- your reliance list.

24 A. Yes, yes.

25 Q. For your expert report. Thank you.

1 Aside from the articles that you -- you mentioned,
2 the ATSDR reports and -- the ATSDR modeling reports
3 for Tarawa Terrace and Hadnot Point, Holcomb
4 Boulevard, and then your expert and rebuttal
5 report, did you review any other documents?

6 A. Just my deposition from September 26th.

7 Q. Okay.

8 A. And the exhibits that you provided.

9 Q. Oh, okay. During the September 26th --

10 A. Yes.

11 Q. -- 2024 deposition?

12 A. Yes.

13 Q. Did you review any of the other expert
14 reports in the case?

15 A. I reviewed Dr. Konikow's report. I
16 reviewed Dr. Sabatini's report. I reviewed
17 Dr. Jones and Mr. Davis's post-audit report and
18 rebuttal. And I also reviewed the defense's expert
19 reports by Dr. Spiliotopoulos, Dr. Hennet, and
20 Dr. Brigham.

21 Q. Understood. And I understand just from
22 attending the depositions of Dr. Aral, Mustafa
23 Aral, Dr. Davis, Dr. Jones, and then Dr. Konikow
24 about a week or so ago -- did you listen in to all
25 of those depositions as well?

1 A. Yes.

2 Q. Okay.

3 A. With Dr. Konikow I had to step out for
4 a couple of hours.

5 Q. Okay.

6 A. To do a medical run with my dad, so --
7 but I listened, I would say, to a majority of it.

8 Q. Did you review any of the transcripts
9 from those depositions?

10 A. I -- I read them. I guess
11 Dr. Konikow's transcript, because I wasn't there
12 for part of it, I read that in its entirety. Okay.
13 The other ones, just spot, you know, spot read
14 because I was watching the entire time.

15 Q. Understood. Did you do anything else
16 to prepare for today's deposition?

17 A. Only discuss with the plaintiff's
18 attorney the logistics, again, of, I believe, the
19 first time I was deposed as a fact witness versus
20 an expert witness to them.

21 Q. Understood. And I'm not asking about
22 the substance of your conversations with --

23 A. Right.

24 Q. -- the lawyers, just the circumstances
25 of the meeting. When did you meet with the lawyers

1 to prepare for the deposition today?

2 A. Yesterday, most of the day, and on
3 Tuesday afternoon.

4 Q. Okay. Who did you meet with yesterday?

5 A. Yesterday I met with Mr. Dean and also
6 Mr. Williams.

7 Q. Was there anyone else present in that
8 meeting?

9 A. Mr. Tim Thompson. He works with
10 Mr. Williams, and that's it.

11 Q. Okay. About how long did that meeting
12 last, the one yesterday?

13 A. Yesterday, we started about 9:30 and
14 ended about 4:30, 5.

15 Q. Did you review any documents during
16 yesterday's meeting?

17 A. Yes, the same ones that I had mentioned
18 to you, and spoke about wanting to place the
19 journal article as an addition to my materials in
20 my expert report.

21 Q. Understood.

22 MR. DEAN: Not to interrupt, but you
23 might want to ask him was anybody else in
24 attendance by Zoom. Because you asked in person
25 and he may have forgotten that.

1 MR. ANWAR: Sure.

2 BY MR. ANWAR:

3 Q. Were -- was anyone else in attendance?

4 A. Yes, another attorney, Laura Baughman.

5 Q. Okay.

6 A. With -- was in and out on Zoom.

7 Q. To the best of your knowledge, during
8 yesterday's meeting, it was only yourself and
9 attorneys for the plaintiffs attending, correct?

10 A. That's correct.

11 Q. And then on Tuesday's meeting, who was
12 present for that?

13 A. I believe that was Mr. Dean and
14 Mr. Williams and Mr. Thompson.

15 Q. And --

16 A. I don't recall if anyone was on Zoom or
17 not. I don't believe because I did not get here
18 until three o'clock p.m.

19 Q. To the best of your knowledge, the only
20 folks in attendance on Tuesday's meeting were
21 yourself and lawyers for the plaintiffs?

22 A. That is correct.

23 Q. Prior to yesterday's meeting and
24 Tuesday's meeting, were there any other meetings
25 with the lawyers to prepare for today's deposition?

1 A. No, no meetings.

2 Q. Dr. Konikow mentioned during his
3 deposition a meeting that took place. I think he
4 said it was in preparation for his deposition, but
5 you were present as well; is that right?

6 A. That's -- yes, yes, yes, now that I
7 recall, that was when -- I believe, if I'm not
8 mistaken, that was in February.

9 Q. Okay.

10 A. And I think I was supposed to be -- be
11 deposed that Thursday. That got postponed.

12 Q. Sure.

13 A. But Dr. Konikow and I were in that
14 meeting, yes.

15 Q. Aside from yourself and Dr. Konikow,
16 who else attended that meeting?

17 A. Mr. Dean, Mr. Williams, and I believe
18 Mr. Thompson.

19 Q. Any -- anyone other than yourself,
20 Dr. Konikow, and the plaintiffs' lawyers attend
21 that meeting?

22 A. Not that I recall.

23 Q. Have you -- did you attend any other
24 meetings in preparation for today's deposition?

25 A. No, I did not.

1 Q. Did you speak with anyone else in
2 preparation for today's deposition?

3 A. No, I did not.

4 Q. Did you speak with anyone from ATSDR in
5 preparation for today's deposition?

6 A. No.

7 Q. Now, you -- we have the -- the most
8 recent 2020 article from Clement that you're adding
9 to your -- your reliance list --

10 A. Yes.

11 Q. -- and have provided a copy here today.
12 You mentioned a couple of other articles that you
13 reviewed.

14 A. Right.

15 Q. And I was just wondering, the Clement
16 article and the other articles that you reviewed,
17 why did you review those articles?

18 A. Well, the article that I coauthored on
19 the analytical contaminant transport analysis
20 system, the ACT system, I think it was published in
21 2004, we reviewed that because it had a number of
22 historical reconstruction cases. One was for
23 20 years, a dry cleaner in New Mexico, and one was
24 -- I want to say it's Otis Air Force Base, EDB
25 contamination, and we did 65 years, and we used an

1 analytical contaminant fate and transport model and
2 conducted two-stage Monte Carlo simulation. So I
3 just wanted to refresh my memory as to what we did
4 and some of the parameters that -- contaminant fate
5 and transport parameters that we used in that.

6 In the Clement article I reviewed --
7 and I reviewed that one in specific detail because
8 Dover Air Force Base is very similar to Tarawa
9 Terrace. About the same size, 2.4 square miles.
10 They used a -- was testing out the RT3D model,
11 which is the reactive transport. So they went from
12 PCE to TCE to DCE to vinyl chloride in their
13 analysis, and a number of their parameters are
14 right where the parameter values that we calibrated
15 for Tarawa Terrace, so I thought it was a good
16 comparison article.

17 Q. The Clement article, I'll look at it
18 during the break.

19 A. Okay.

20 Q. But just based on your memory, what --
21 what did they use that model for?

22 A. I think the -- the purpose was to --
23 was it to -- well, there was historical
24 contamination at the Air Force base and they wanted
25 to look at how it advanced in time, and they wanted

1 to test out the RT3D code that Dr. Clement had
2 developed originally when he was at Lawrence
3 Livermore National Labs, and it was hooked in to
4 MT3DMS, and so they were testing that out, and
5 that's what basically I recall. And then when I
6 started reading the details of it, it appeared to
7 me that it was a very, very good comparison article
8 to what we did at Tarawa Terrace.

9 Q. Just quickly -- and I'll mark this as
10 an exhibit, actually.

11 A. Okay.

12 (DFT. EXHIBIT 1, article from Journal
13 of Contaminant Hydrology entitled "Natural
14 Attenuation of Chlorinated Ethene Compounds: Model
15 Development and Field-scale Application at the
16 Dover Site", was marked for identification.)

17 BY MR. ANWAR:

18 Q. Let's go ahead and mark this as
19 Exhibit 1, but I'll -- I'll mark it and then I'll
20 hand it to you after I have a chance to read it.
21 The 2020 Clement article on the Dover Air Force
22 Base site, in the abstract it states, "the
23 numerical model developed in this study is a useful
24 engineering tool for integrating field-scale
25 natural attenuation data within a rational modeling

1 framework. The model results can be used for
2 quantifying the relative importance of various
3 simultaneously occurring natural attenuation
4 processes."

5 Does that sound consistent with your
6 recollection?

7 A. Yes.

8 MR. DEAN: Object to the form of the
9 question. I think you misspoke about the data, the
10 article. I think you said 2020. If you said 2000,
11 I apologize, but I thought I heard 2020.

12 BY MR. ANWAR:

13 Q. Okay. And I understood you, Doctor, or
14 Dr. Maslia, Mr. Maslia, to state that this article
15 was published in 2020, but I perhaps misunderstood.

16 A. Okay. Okay. It is a 2000 article.

17 Q. 2000 article. Okay. So I'll reask my
18 question. This 2000 article -- and it looks like
19 on the first page of the article it actually says
20 it was accepted in October -- into the -- this
21 journal in October of 1999, but let's -- let's call
22 it the 2000 Clement article.

23 The abstract states, "the numerical
24 model developed in this study is a useful
25 engineering tool for integrating field-scale

1 natural attenuation data within a rational modeling
2 framework. The model results can be used for
3 quantifying the relative importance of various
4 simultaneously occurring natural attenuation
5 processes."

6 Is that consistent with your
7 recollection of the article?

8 A. Yes.

9 Q. To the best of your knowledge, was the
10 model discussed in this 2000 Clement article
11 estimating contaminant concentrations for
12 determining exposure in specific individuals?

13 A. The article did not go into what the
14 end use was, okay? I took it to mean that this was
15 the first stage or initial stage in developing a
16 model. It did not discuss exposure. In other
17 words, it was not an exposure assessment article.

18 Q. And to the best of your knowledge, was
19 this -- the model discussed in the 2000 Clement
20 article used for estimating contaminant
21 concentrations for the purpose of -- purpose of
22 determining exposure in individuals?

23 A. It was used for determining contaminant
24 concentrations.

25 Q. But as you sit here today, you're not

1 aware of it being used for the purpose of
2 determining exposure in individuals?

3 MR. DEAN: Object to the form of the
4 question.

5 THE WITNESS: I don't know what the end
6 use was.

7 BY MR. ANWAR:

8 Q. With respect to any -- the other
9 articles that you mentioned, were any of those
10 models -- strike that.

11 With respect to the other articles that
12 you mentioned, were any of the models discussed in
13 those articles used for estimating contaminant
14 concentrations that were used to determine exposure
15 in individuals?

16 A. The -- or the sites that we summarized
17 or did an analysis for in our 2004 paper, the
18 analytical containment transport analysis system,
19 one of them was at a dry cleaner in New Mexico and
20 the other one was Otis Air Force Base, which was
21 multimedia, meaning groundwater surface water and
22 -- and volatilization, and I know USGS has done
23 some work at Otis Air Force Base. It's been an
24 ongoing thing and I believe there are some
25 components from just the general topic of Otis Air

1 Force Base that look at exposure. It goes -- there
2 are people living downstream from the river that
3 goes through the Air Force base. I don't know the
4 details of the subsequent analysis of -- on -- on
5 that. I believe ATSDR did use the New Mexico site,
6 I think it's North Avenue Railroad site, if I
7 recall correctly, and I think they did a health
8 assessment there, okay, but I don't know the
9 specifics.

10 Q. Those other articles, are those
11 included on your -- either in your report or on the
12 reliance list?

13 A. Yes, the -- the 2004 is already on my
14 reliance list, 2004 by Maslia and Aral.

15 Q. And that's the one -- 2004 is focused
16 on Otis Air Force Base?

17 A. And -- and the New Mexico site.

18 Q. Okay. So it's just one article from
19 2004?

20 A. Yes.

21 Q. Besides that article and this 2000
22 Clement article, it sounded like you reviewed a
23 couple of other articles, perhaps related to
24 uncertainty analysis.

25 A. Right.

1 Q. Did any of those involve using
2 groundwater modeling to estimate contaminant
3 concentrations for the purposes of determining
4 exposure in individuals?

5 MR. DEAN: Object to the form.

6 THE WITNESS: Again, most of the
7 articles that I reviewed did not state the end
8 purpose of the -- they said the purpose of the
9 modeling to reconstruct or predict groundwater
10 contaminant concentrations using techniques,
11 different techniques, and also one of the articles
12 went into -- I think it was one of the earlier
13 applications of uncertainty analysis using Monte
14 Carlo simulation.

15 BY MR. ANWAR:

16 Q. So as you sit here today, you're not
17 aware of those other articles using models to
18 estimate contaminant concentrations for the purpose
19 of determining exposure in individuals, correct?

20 MR. DEAN: Object to the form.

21 THE WITNESS: Again, not having been
22 directly involved with the analysis, it's -- I
23 really can't answer what the results were used for.

24 BY MR. ANWAR:

25 Q. Okay.

1 A. The articles describe the process of
2 developing and/or calibrating models.

3 MR. DEAN: Object to the form. And
4 also add that if you're going to ask him about what
5 certain conclusions are in certain reports, that
6 the witness is entitled to see those reports, have
7 an opportunity to review them in detail, and then
8 properly respond.

9 MR. ANWAR: I'm going to mark the 2000
10 Clement article as Exhibit 1.

11 BY MR. ANWAR:

12 Q. Now, earlier we talked about the other
13 experts in the case and you having listened to
14 their depositions and read the deposition
15 transcripts, correct?

16 A. Right, yes, to -- some more detail than
17 others.

18 Q. Sure. One of those experts is doctor
19 -- professor -- or Dr. Mustafa Aral, correct?

20 A. Yes.

21 Q. Who is -- remind me, who is Mustafa
22 Aral?

23 A. Well, he was a professor at the Georgia
24 Institute of Technology. He was also director of
25 the multimedia environmental simulations laboratory

1 within the School of Civil and Environmental
2 Engineering. And he had or he was the principal
3 investigator on a cooperative agreement between
4 ATSDR and Georgia Tech.

5 Q. And the cooperative agreement between
6 ATSDR and Georgia Tech, was that in relation to the
7 Camp Lejeune water modeling?

8 A. Not specifically. That was a
9 multiyear-type agreement and it was for any site.
10 For example, the couple of sites that I mentioned
11 in the journal article, ACTS article, we did
12 cooperatively.

13 Q. Understood. So -- but it did include
14 the Camp Lejeune water modeling, correct?

15 A. Yes, it did.

16 Q. And if I understand your testimony
17 before correctly, Dr. Aral was a professor that you
18 had at Georgia Tech, correct?

19 A. Yes, yes, he was my -- my master's
20 thesis dissertation chair of that -- that
21 committee.

22 Q. Okay. And you know him personally,
23 correct?

24 A. I know him professionally. I don't
25 socialize with -- with -- with him, but I've known

1 him throughout the years professionally.

2 Q. Understood. What is your opinion of
3 Dr. Aral?

4 A. He's very qualified. I view him as a
5 mentor.

6 Q. Okay.

7 A. And can take his problems and analyze
8 them from a practical standpoint and also address
9 them through computational methods.

10 Q. Now, you also listened to the
11 depositions of Jeffrey Davis and Norman Jones,
12 correct?

13 A. Correct.

14 Q. Who is Jeffrey Davis?

15 A. I only -- I've never met him in person.
16 I met him, I assume, through Zoom and he's -- to my
17 understanding, he's a consulting engineer and
18 modeler.

19 Q. You mentioned you have spoken with
20 Mr. Davis on Zoom; is that right?

21 A. In a meeting, yes, in meetings.

22 Q. Was that during the course of preparing
23 expert reports in the case?

24 A. I believe he and Dr. Jones had some
25 questions about the Tarawa Terrace model input

1 files, and so I think that's where we had
2 discussions over Zoom.

3 Q. And it was in the context of the -- the
4 litigation, correct?

5 A. Yes.

6 Q. Had you met either Jeffrey Davis or
7 Norman Jones prior to being retained by plaintiffs
8 as an expert?

9 A. I have met Dr. Jones previously.

10 Q. Okay. You had not met Mr. Davis prior
11 to working -- or that call with him in the context
12 of the litigation, correct?

13 A. That is correct.

14 Q. Had you worked with Mr. Davis prior to
15 that Zoom meeting with him?

16 A. No, I have not.

17 Q. And it sounds like you don't know him
18 personally or socially, correct?

19 A. That is correct.

20 Q. Now, you mentioned having met Dr. Jones
21 in the past?

22 A. Right.

23 Q. When have you met Dr. Jones in the
24 past?

25 A. I served with Dr. Jones on a review of

1 a National Science Foundation grant for the
2 University of Alabama. And so he was the chair of
3 the panel. And I think every year, every other
4 year, they have to have a review status report like
5 that, so that's -- that's where I met him in
6 person.

7 Q. Around what time frame would that
8 meeting have taken place?

9 A. 2021, 2022, someplace around there.

10 Q. Have you met him on any other
11 occasions?

12 A. Not in person, but I do know of him.

13 Q. How do you know of him?

14 A. Early on or as part of the Tarawa
15 Terrace analyses we found out that the -- I believe
16 it was the U.S. Army Corps of Engineers or U.S.
17 Army Corps of -- Hydrologic Center were developing
18 a software platform called GMS. And while they
19 were beta testing it, since we were a federal --
20 sister federal agency, they wanted people to test
21 it out. So they provided us with a license, and I
22 believe Dr. Jones was one of the original
23 developers of the GMS software and platform.

24 Q. Do you remember around what time frame
25 that would have been developed?

1 A. I don't know the start of GMS, but
2 there's probably some letters in my files or
3 e-mails. I'm going to say 2005, '6, somewhere --
4 maybe 2004, right when we were modeling or --
5 modeling Tarawa Terrace.

6 Q. Did Dr. Jones directly work on the
7 model -- ATSDR's Camp Lejeune model for Tarawa
8 Terrace?

9 A. No.

10 Q. Okay. You just had the conversation
11 with him in the context of the GMS software?

12 A. No, I've never had --

13 Q. Oh, you didn't. Okay.

14 A. It was just his -- his name as the
15 developer --

16 Q. Understood. Understood.

17 A. -- when we were provided the executable
18 code by -- I think it was U.S. Army Corps of
19 Engineers Hydrologic Engineering Center, and so I
20 just saw it -- saw it through there, okay?

21 Q. Outside of the work with the University
22 of Alabama and then the Zoom meeting that you
23 described for the purpose of this litigation, have
24 you worked with Dr. Jones in any other context?

25 A. No.

1 Q. Do you have any opinion about either
2 Mr. Davis or Dr. Jones?

3 A. Both very well qualified. Very good
4 analysts and they know their way around the GMS
5 modeling platform. And I believe Dr. Jones is the
6 chair of the Brigham Young University School of
7 Civil and Environmental Engineering.

8 Q. What about David Sabatini, who is
9 Dr. Sabatini?

10 A. I understand he's a professor -- and I
11 forget the university, whether it's Texas or
12 Oklahoma. Reading his report, he is -- appeared to
13 me to be an expert in volatilization issues, and I,
14 again, only met him over Zoom.

15 Q. And that was in the context of this
16 litigation, correct?

17 A. Yes.

18 Q. Had you met him prior to the Zoom
19 meeting in this litigation?

20 A. No, I have not.

21 Q. Do you have any opinion about Dr. -- or
22 David Sabatini?

23 A. The same as the others, very competent
24 and understands volatilization issues. Was able to
25 assess them both from a scientific engineering

1 standpoint as well as present them to a layperson
2 who is not as technically knowledgeable.

3 Q. Thank you.

4 A. Can I get a drink of water here?

5 Q. Sure.

6 (DFT. EXHIBIT 2, deposition of Morris
7 L. Maslia dated June 30, 2010 Bates-stamped
8 CLJA_Healtheffects-00000494487 through 0000049712,
9 was marked for identification.)

10 BY MR. ANWAR:

11 Q. I'm handing you what I'm marking as
12 Exhibit 2. Here you go. And I asked you these
13 questions last time around --

14 A. Okay.

15 Q. -- in September, but I just want to
16 confirm.

17 A. Okay. Can I take the rubber band off?

18 Q. Sure. Actually, that's all -- I
19 actually gave you all the copies.

20 A. Oh.

21 Q. Feel free to give one to Kevin.

22 A. Okay. Who else?

23 Q. And I can take that one. Exhibit 2 is
24 a transcript from a deposition you gave in 2010 in
25 Laura Jones versus the United States, correct?

1 A. That is correct.

2 Q. Okay. And at that time you were
3 employed still with the ATSDR, correct?

4 A. That is correct.

5 Q. And you were, I think, in the midst of
6 working on the Hadnot Point/Holcomb Boulevard
7 model, correct?

8 A. That is correct.

9 Q. And the Laura Jones versus United
10 States case, that was a prior Camp Lejeune case,
11 correct?

12 MR. DEAN: Object to the form of the
13 question.

14 THE WITNESS: It was never explained to
15 me, either by the Office of the General Counsel or
16 DOJ or the plaintiffs' attorney, what -- what
17 exactly the case was for.

18 BY MR. ANWAR:

19 Q. The focus of your deposition, was it on
20 your work on the ATSDR water modeling for Camp
21 Lejeune?

22 MR. DEAN: Object to the form of the
23 question.

24 THE WITNESS: It was for Tarawa
25 Terrace, my understanding was.

1 BY MR. ANWAR:

2 Q. Okay. So the focus of the deposition
3 was the Tarawa Terrace model, correct?

4 MR. DEAN: Object to the form of the
5 question.

6 THE WITNESS: That's my --

7 MR. DEAN: Give me time to -- you can
8 answer.

9 THE WITNESS: Okay. That -- that was
10 my understanding.

11 BY MR. ANWAR:

12 Q. Okay. And you testified under oath
13 during that deposition truthfully, correct?

14 A. Yes, I did.

15 Q. And you had an opportunity to -- to
16 review the transcript and make corrections on an
17 errata sheet, correct?

18 A. That is correct.

19 Q. And I believe the last page of the
20 transcript is your signed errata sheet. You can
21 take a look.

22 A. Yes, yes, it is.

23 Q. Okay. And as you sit here today, do
24 you stand by your prior deposition testimony?

25 A. I will say I generally do. If there's

1 a specific item in -- in here that there's a
2 question about, I would have to see what that
3 technical issue is and then I could specifically
4 tell you.

5 Q. Okay.

6 A. Okay.

7 Q. As you sit here today, you don't have
8 any changes that you want to make to that
9 testimony?

10 MR. DEAN: Object to the -- object to
11 the form.

12 BY MR. ANWAR:

13 Q. You didn't come with changes, correct?

14 A. No, I did not come with changes.

15 Q. Okay. So I am handing you now what I'm
16 marking as Exhibit 3.

17 (DFT. EXHIBIT 3, deposition of Morris
18 Maslia dated September 26, 2024, was marked for
19 identification.)

20 BY MR. ANWAR:

21 Q. Here you go.

22 MR. ANWAR: Kevin, here you go, if you
23 would like a copy.

24 MR. DEAN: All right. Thanks.

25 BY MR. ANWAR:

1 Q. I'll represent to you this is a copy of
2 the transcript from your September 26th, 2024
3 deposition in this case. Would you agree with
4 that?

5 A. It appears to be, yes.

6 Q. And this is deposition you gave in this
7 case in your sort of capacity as a fact witness,
8 correct?

9 A. That is my understanding, yes.

10 Q. And this deposition took place after
11 you had been retained by the plaintiffs, but before
12 you had disclosed your expert report in the case,
13 correct?

14 A. Yes, that is correct.

15 Q. And you gave that deposition testimony
16 under the oath to tell the truth and testify
17 truthfully, correct?

18 A. That is correct.

19 Q. And you had an opportunity to review
20 and make corrections on an errata sheet for that
21 deposition transcript as well, correct?

22 A. Yes, I did.

23 Q. And I say that deposition transcript.
24 I mean the September 2024 transcript; is that
25 correct?

1 A. Yes.

2 Q. Okay.

3 (DFT. EXHIBIT 4, Acknowledgement of
4 deponent and errata sheets, was marked for
5 identification.)

6 BY MR. ANWAR:

7 Q. I'm handing you what I'm marking as
8 Exhibit 4, which I'll represent to you is a copy of
9 your signed errata sheet for the September 2024
10 deposition transcript. Would you agree with that?

11 A. Yes, it is.

12 Q. Aside from the changes on that errata
13 sheet, do you have any changes to your prior
14 deposition testimony?

15 A. Not that I recall at this time.

16 Q. Okay. Nothing that you came with to
17 the deposition, correct?

18 A. Excuse me? I don't understand the
19 question.

20 Q. You didn't come prepared to make
21 changes or offer changes to your past deposition
22 testimony as you sit here right now, correct?

23 A. No, I do not.

24 Q. Okay. I am going to hand you now what
25 I'm marking as Exhibit 5.

1 (DFT. EXHIBIT 5, Expert Report of
2 Morris L. Maslia, P.E., D.WRE, DEE, Fellow EWRI,
3 was marked for identification.)

4 BY MR. ANWAR:

5 Q. Here you go.

6 MR. ANWAR: Here's a copy for you.

7 BY MR. ANWAR:

8 Q. Mr. Maslia, this is a copy of your
9 expert report in this case dated October 25th,
10 2024, correct?

11 A. That is -- I'm looking for the date on
12 here. There's no date on this copy.

13 Q. I think it's at the bottom there in the
14 middle.

15 A. Oh, there it is, yes. Okay. That is
16 correct.

17 Q. And to the -- you had an opportunity to
18 sort of look through that. True and accurate copy,
19 to the best of your review?

20 A. The copy is correct.

21 Q. And aside from the articles that you --
22 we discussed this morning already, is the
23 materials-considered list on there complete and
24 accurate?

25 A. Yes, as far as I know.

1 Q. Is there anything on -- in that report
2 that you believe needs to be added that's not
3 reflected in the report?

4 A. No.

5 Q. I am handing you now what I'm marking
6 as Exhibit 6.

7 (DFT. EXHIBIT 6, Rebuttal Response to
8 Reports of Alexandros Spiliotopoulos, Remy, J.-C.
9 Hennet & Jay Brigham, was marked for
10 identification.)

11 BY MR. ANWAR:

12 Q. Mr. Maslia, is Exhibit 6 a true and
13 accurate copy of your rebuttal expert report
14 submitted in this case?

15 A. Yes, it is.

16 Q. And it's dated January 14, 2024?

17 A. Yes, it is.

18 Q. And aside from the articles that you
19 mentioned this morning, is there anything missing
20 from the materials-considered list or the
21 references provided with this report?

22 A. No.

23 Q. And in this report, as the title
24 indicates, is in response to the reports of DOJ
25 experts Dr. Spiliotopoulos, Dr. Hennet and Brigham?

1 A. That is correct.

2 Q. Do you know Dr. Spiliotopoulos, Hennet
3 or Brigham?

4 A. I do not know any of them and have
5 never met any of them.

6 Q. Do you know of any of them?

7 A. I know of Dr. Spiliotopoulos. I
8 believe his name appeared in -- as an observer at
9 at least one of the ATSDR expert panel meetings.

10 Q. Okay.

11 A. But I could not tell you exactly which
12 one, okay?

13 Q. Have you ever met Dr. Spiliotopoulos?

14 A. No.

15 Q. Have you -- so fair to assume if you
16 haven't met him, you've never worked with him,
17 correct?

18 A. That is correct.

19 Q. And same with Dr. Hennet?

20 A. That is correct.

21 Q. And I assume same with Dr. Brigham?

22 A. That is correct.

23 Q. Do you have any opinion about
24 Dr. Spiliotopoulos, Hennet or Brigham?

25 A. Not other than they are the DOJ's

1 expert witnesses.

2 Q. Okay. In your -- either your primary
3 expert report or the rebuttal report, is there
4 anything that you believe is incorrect?

5 A. I would -- in my expert report there
6 was -- and there was discussion during my
7 deposition about model bias and geometric biases.
8 And I believe that we -- or I went back and --
9 because there were a number of duplicate samples.
10 And because our model was only on a monthly time
11 frame, it really is not correct to try to match
12 daily or even weekly samples within monthly model
13 output.

14 So if you take the average within the
15 month of the actual sample data, you get a much
16 closer geometric bias to 1 -- 1.5. So we
17 overstated both in the ATSDR report, and I'm
18 talking about Tarawa Terrace, as well as my expert
19 report, which came from -- had that overstated or
20 provided a higher geometric bias both for the
21 supply wells and the water treatment plant than I
22 believe should actually be there.

23 Q. Is that currently reflected in your
24 expert report?

25 A. No, it's not.

1 Q. And it's not reflected in the ATSDR
2 reports, correct?

3 A. No, no.

4 Q. When --

5 A. I'm sorry.

6 Q. No, go ahead.

7 A. My expert report reflects or copies
8 exactly the tables out of the ATSDR reports
9 specifically for Tarawa Terrace with that.

10 Q. When did you do this analysis about the
11 geometric bias? And this is specifically for
12 Tarawa Terrace?

13 A. Yes, I would say within -- as I was
14 preparing my rebuttal report to the DOJ experts and
15 within last month sometime, I started just reading
16 more about nondetection of sample data and multiple
17 samples within a month, which we had at Tarawa
18 Terrace, Hadnot Point, and then realizing that our
19 model results -- we only had one result per month
20 because they were monthly time steps. So the
21 implication was that the model could reproduce
22 those daily or multiple monthly sampling, and they
23 -- it really can't if you only have a one-month
24 time step.

25 Q. Does it follow, then, the -- the model

1 certainly -- because the model produced monthly
2 estimated concentrations, correct?

3 A. That is correct.

4 Q. And the model was not intended to
5 produce daily estimated concentrations, correct?

6 A. Not the groundwater flow and
7 contaminant transport. It was produced -- we had
8 monthly time steps, so that would be 31, 30, 28 or
9 29 days, depending on which month it was, and our
10 assumption was that represented the last day of
11 each month, like January 31st, February 28th, and
12 so on, but that it was equally likely to occur on
13 any day of the month.

14 Q. So is it your opinion because you used
15 daily samples, but the model was producing monthly
16 simulated contaminant concentration estimates, that
17 you overestimated the geometric bias?

18 A. Yes.

19 MR. DEAN: Object to the form.

20 THE WITNESS: We computed a geometric
21 bias that was higher than if you had a one-to-one
22 correspondence, one -- one sample and one model
23 result for each month.

24 BY MR. ANWAR:

25 Q. Have you actually done the calculations

1 on that?

2 A. Yes, I have.

3 Q. I guess, based on the opinion that
4 you're offering now, what is -- what is, in your
5 opinion, the geometric bias for the Tarawa Terrace
6 model?

7 A. For the supply wells, I believe it
8 comes down to somewhere below 1.5 and recalling a
9 value of 1.0 would be an exact match, okay? And at
10 the water treatment plant, I believe it comes down
11 to almost 1.0.

12 Q. Do you -- when you said you did the
13 calculations, is that reflected in writing
14 anywhere?

15 A. I've got notes, but not with me.

16 Q. Okay. If we requested those notes to
17 be produced, would you be agreeable?

18 MR. DEAN: Object -- object to the form
19 of the question. I'll let you finish. I'm not
20 sure if you were finished.

21 BY MR. ANWAR:

22 Q. Well, we will request the notes from
23 your lawyer and the lawyers will work it out, but
24 if your lawyers ask you for the notes, would you be
25 agreeable to giving it to them?

1 A. Yes.

2 MR. DEAN: Object to the form of the
3 question.

4 BY MR. ANWAR:

5 Q. And outside of those notes, this
6 opinion that you're offering now, it's not
7 reflected in either your current expert report or
8 rebuttal report or the ATSDR reports themselves?

9 A. That is correct.

10 Q. And sort of my general high-level
11 understanding of sort of the thrust of your main
12 expert report at least is, is that the -- the ATSDR
13 models for Tarawa Terrace and the model for Hadnot
14 Point and Holcomb Boulevard are sufficiently
15 reliable and accurate to -- in estimating
16 contaminant levels for purposes of using them to
17 make exposure determinations in this case; is that
18 right?

19 A. I would say that the models produce
20 reliable results on a monthly basis, the
21 groundwater flow and contaminant transport models
22 for both Tarawa Terrace and Hadnot Point, and that
23 we met one of the objectives that we were required
24 to meet by the study epidemiologists of providing
25 mean monthly concentrations.

1 Q. You're serving as an expert in this
2 case, correct?

3 A. That is correct.

4 Q. On behalf of the plaintiffs, correct?

5 A. That is correct.

6 Q. And do you understand that the
7 plaintiffs are offering the model for purposes of
8 estimating exposure in individual plaintiffs in the
9 litigation?

10 MR. DEAN: Object to the form of the
11 question.

12 THE WITNESS: When we did the model, I
13 was not aware of the end use of it. I was
14 concerned with and what I have presented to the
15 plaintiffs is that it's reliable to provide monthly
16 mean concentrations. I'm not involved in, nor have
17 I ever been involved in, any use post-modeling
18 results.

19 BY MR. ANWAR:

20 Q. You understand the -- and if not, I'm
21 telling you now, the plaintiffs' lawyers are
22 offering the model as a way to estimate exposure --
23 estimated exposures in individual plaintiffs. Do
24 you understand that?

25 MR. DEAN: Object to the form of the

1 question.

2 THE WITNESS: I understand what you
3 have just said, yes.

4 BY MR. ANWAR:

5 Q. Okay. And do you believe the model is
6 sufficiently reliable and accurate for that
7 purpose?

8 A. The model is sufficiently reliable and
9 accurate for the monthly mean concentrations in
10 groundwater and in drinking water. I don't know
11 what analyses they are conducting with those --
12 with those values, nor I have ever known, even when
13 I was at ATSDR, what the epidemiologists or how
14 they were planning on -- on using them other than
15 in a general framework. But the epidemiologists at
16 ATSDR believe the model results were reliable and
17 accurate for their use.

18 Q. Sort of at a high level I understood
19 the purpose of your report as -- to be supporting
20 the use of the model in the litigation. Would you
21 agree with that?

22 MR. DEAN: Object to the form of the
23 question.

24 THE WITNESS: Could you clarify which
25 report you're speaking of?

1 BY MR. ANWAR:

2 Q. Sure. I understood the purpose of your
3 expert report that you submitted as a litigation
4 expert in the case for which you're consulting with
5 the plaintiffs on as advocating for or supporting
6 the use of ATSDR's Tarawa Terrace and Hadnot
7 Point/Holcomb Boulevard models in the litigation.

8 MR. DEAN: I'm sorry.

9 BY MR. ANWAR:

10 Q. Do I understand -- am I -- would you
11 agree with that?

12 MR. DEAN: Object to the form of the
13 question. You're asking him if he understands the
14 same thing you understand? That's...

15 THE WITNESS: My understanding was --

16 MR. DEAN: For the record, I do not
17 know, nor has Mr. Anwar provided sufficient
18 information about what his understanding is to get
19 in his head in order to be able to have anyone
20 properly be able to respond to that question, so I
21 object to the form.

22 MR. ANWAR: And I appreciate your
23 objections, Kevin. I would appreciate if you also
24 limit your objections to form within the rules and
25 limit your speaking objections. Mr. Maslia is the

1 one here to testify. This isn't your deposition.

2 MR. DEAN: You're familiar with the
3 rules of the road and the rules of depositions, and
4 if you follow those rules, then I will certainly
5 follow them as well.

6 MR. ANWAR: And I am sort of raising
7 this now because if this continues to be a problem,
8 we intend to take that to the Court, so...

9 BY MR. ANWAR:

10 Q. Mr. Maslia, I will ask you the question
11 again. So you submitted an expert report in this
12 case?

13 A. Yes.

14 Q. And you submitted an expert report as a
15 paid litigation expert, correct?

16 A. That is correct.

17 Q. And you did so on behalf of the
18 plaintiffs, correct?

19 A. That is correct.

20 Q. Did you do so with the understanding
21 that the plaintiffs are offering the model or the
22 -- and when I say "the model", I mean ATSDR's
23 Tarawa Terrace model and ATSDR's Hadnot
24 Point/Holcomb Boulevard model -- for use in the
25 litigation?

1 MR. DEAN: Object to the form.

2 THE WITNESS: I did so as the expert
3 and the person who oversaw the development of the
4 ATSDR models to any technical or scientific
5 questions pertaining specifically to the model,
6 model assumptions, model results that the
7 plaintiffs' attorneys may have.

8 BY MR. ANWAR:

9 Q. Okay. I just want to make sure I'm
10 crystal clear on this because as of now the Court
11 intends to hold a hearing on -- or the -- there's
12 discussion of a potential hearing being held on
13 issues related to water contamination in the case.
14 And I imagine if the Court does hold a hearing,
15 you'll be called to testify. And if you're asked
16 by a lawyer or one of the judges that -- whether or
17 not the Court should use the model for making
18 exposure determinations for individual plaintiffs
19 in the case, what would your answer be?

20 MR. DEAN: Object to the form of the
21 question.

22 THE WITNESS: My response would be,
23 from my standpoint, my professional and expert
24 standpoint, that the model results are reliable
25 based on our assessment of model calibration, model

1 results, and that the -- as long as the models are
2 sufficiently calibrated, in my mind, anyone can use
3 them for whatever purpose they want to use them
4 for. In other words, we did not calibrate the
5 models with the end result of exposure assessment.
6 Again, we were, at ATSDR, blinded to anything with
7 the epidemiology in terms of cases, controls,
8 people, anything like that, other than the five
9 objectives that I believe I listed in my expert
10 report as to what the epidemiologists requested us
11 to meet.

12 BY MR. ANWAR:

13 Q. Okay. Now, Appendix A, which is page
14 120 of your initial expert report.

15 A. 2020. Yes, I'm there.

16 Q. Is that a true and accurate copy of
17 your curriculum vitae?

18 A. Yes, it is.

19 Q. To the best of your knowledge, as you
20 sit here today, is it complete?

21 A. Yes, it is.

22 Q. And there's not anything that needs to
23 be updated as far as you're aware on that
24 curriculum --

25 A. Not that I'm aware of.

1 MR. DEAN: So there's someone who has
2 just joined with an area code 202 number. You're
3 not muted. Would you mind muting your phone,
4 please. Thank you.

5 BY MR. ANWAR:

6 Q. And on page 17 of your report it states
7 that "I'm being compensated an hourly rate of 400
8 for my work for preparing this report. My rate for
9 depositions and trial testimony is 2,000 per day."
10 Did I read that correctly?

11 A. Yes, you read that correctly.

12 Q. And is that what you're being
13 compensated in the case?

14 A. Yes, as it states right here.

15 Q. I'm handing you what is being marked as
16 Exhibit 7.

17 (DFT. EXHIBIT 7, M.L. Maslia Consulting
18 Engineer invoices Bates-stamped
19 CL_PLG-Expert_Maslia_0000000609 through 0000000680,
20 was marked for identification.)

21 BY MR. ANWAR:

22 Q. These are invoices that were produced
23 to us in response to a document, subpoena,
24 accompanying your -- your deposition notice.

25 A. Okay.

1 Q. Are these the invoices for the -- for
2 your expert work performed on behalf of the
3 plaintiffs in the case?

4 A. I haven't gone through all of them, but
5 they appear to be with my signature and the
6 billable hours and expenses that I submitted, yes.

7 Q. Okay. Do you have an estimate on how
8 much you've billed to date in the case?

9 A. No, I just submit it on a monthly
10 basis.

11 Q. Sure.

12 A. And you would have to ask the --
13 whoever the accountant is for the plaintiffs or my
14 CPA who is filing my taxes.

15 Q. Well, so I went through the invoices.

16 A. Right.

17 Q. According to my calculation and
18 let's -- let's call this rough, it looks like
19 you've billed a little over 1100 hours in the
20 amount of about \$346,000, just under \$347,000, for
21 your work in this case and that's for professional
22 services. Does that sound about right to you?

23 MR. DEAN: Object to the form.

24 THE WITNESS: It sounds high to me,
25 but, again, you'll have to add these up. If you're

1 basing them on -- on these, that's all --

2 Q. Okay.

3 A. It does sound high. The 300 number
4 sounds high.

5 Q. Okay. But if it's -- if that's what
6 the invoices add up to, you wouldn't dispute it?

7 A. No, I would not.

8 Q. And I noticed your invoices were
9 separated out for professional services and then
10 you had travel and related expenses, correct?

11 A. That is correct.

12 Q. Okay. And so the hours and the numbers
13 I read to you just now were what I calculated for
14 professional services. For travel and related
15 expenses, again, roughly I calculated 82.5 hours in
16 the amount of about \$16,000. Does that sound about
17 right to you?

18 A. It would be hard for me to answer that
19 right at this instant of time without going through
20 them and adding them up.

21 Q. Okay. If that's what they add up to in
22 the invoices, do you have any reason to dispute
23 that?

24 A. No, I do not.

25 Q. We've been going for about an hour.

1 Would you like to take a break or --

2 A. Sure. That would be good.

3 Q. Okay. Let's do that.

4 THE VIDEOGRAPHER: Okay. We're going
5 off record. The time is 10:14 a.m.

6 (A recess transpired.)

7 THE VIDEOGRAPHER: Okay. We're going
8 back on the record. The time is 10:25 a.m.

9 BY MR. ANWAR:

10 Q. We are back on the record from a short
11 break, Mr. Maslia. Are you okay to continue?

12 A. Yes, I am.

13 Q. Did you speak with your lawyers during
14 the break?

15 A. No, I did not.

16 Q. Okay.

17 A. There is one thing I would like to
18 clarify.

19 Q. Sure.

20 A. If I could do that. When we were
21 speaking about the improved and reanalysis of the
22 geometric biases, I got the original thought
23 reading Dr. Konikow's expert report where he had
24 mentioned about duplicate values in his report.

25 Q. Okay.

1 A. So I just wanted to give credit for the
2 initial thought about that.

3 Q. No, I appreciate that. You actually
4 anticipated my question. I was going to ask you
5 sort of as a follow-up when you decided to do that
6 analysis and it sounds like it was in the last
7 month or two; is that right?

8 A. That is correct.

9 Q. Okay. And it was in the context of
10 reading Dr. Konikow's report?

11 A. Yes.

12 Q. Okay. Would that have been after he
13 had disclosed his report?

14 A. Yes, yes, it was the -- I mean, what
15 was submitted to DOJ.

16 Q. Okay. And was there any particular
17 reason you decided to do the analysis or it was
18 just the thought popped up in reading his report?

19 A. Well, he mentioned that -- specifically
20 I believe it was in reference to well TT26 at
21 Tarawa Terrace where there were, like, five samples
22 within a short time period, like within a day or
23 week.

24 Q. Yeah.

25 A. And that the models could not really

1 reproduce that, okay, on a monthly basis. And so
2 that's when I looked at our tables that we had
3 published in the Tarawa Terrace Chapter A report
4 where we computed the model biases and the
5 geometric biases, and I went back and took that
6 suggestion and did the analysis.

7 Q. Okay. And you indicated you have some
8 notes about that, right?

9 A. That is correct.

10 Q. Okay.

11 MR. ANWAR: We will -- we will formally
12 request those notes be produced. We will just
13 formally on the record request that those notes be
14 produced and reserve the right to reopen the
15 deposition depending on what's in the notes.

16 MR. DEAN: That's right. And we
17 reserve all of our objections and -- but we will
18 take a look at it and provide a response back to
19 you.

20 MR. ANWAR: Okay. Sounds good.
21 Thanks, Kevin.

22 MR. DEAN: I don't have what he's
23 referring to here either, so...

24 MR. ANWAR: Okay. Understood.

25 BY MR. ANWAR:

1 Q. And then I wanted to ask you,
2 Mr. Maslia, when we were talking about expert
3 reports that you had reviewed, did you review
4 Dr. Longley's report as well?

5 A. No, I did not.

6 Q. Okay. Did you review it at any point?

7 A. I don't know who Dr. Longley is.

8 Q. Okay. I wanted to ask you a few
9 questions about the invoices. There were a couple
10 of references to discussions with -- with Robert
11 Faye. And it looks like you spoke with Robert Faye
12 in August of 2024. I'll call him Bob Faye.
13 Everyone calls him Bob Faye, it appears. And one
14 of the notes is -- provide Robert Faye, Bob Faye,
15 with verbiage on the use of probabilistic analysis
16 for Tarawa Terrace models, compose table listing,
17 ATSDR data discovery activities, and then review so
18 -- review 2005 expert report panel. And I can
19 direct you to where in the invoices that is if you
20 would like to take a look at it, but --

21 A. Yeah, if you could, please.

22 Q. Sure. It's the page ending 626.

23 A. 626. Okay. Ah, okay. Sure. What
24 date in particular?

25 Q. It's August 24.

1 A. Okay.

2 Q. Why did you speak to Robert Faye there?
3 What was that about?

4 A. Well, Bob Faye and I have known each
5 other professionally probably for 40 years.

6 Q. Four or 40?

7 A. 40. 40. 40 years, more or less. And
8 he was the person responsible for developing the
9 Tarawa Terrace groundwater flow and contaminant
10 fate and transport models as well as analyzing all
11 the hydrogeologic data. And so I had found out,
12 maybe through Bob, that he had been retained by the
13 plaintiffs' attorneys and I think there was a
14 question on -- on his part as to how to properly --
15 or how to word something containing probabilistic
16 analyses, which is what I did at ATSDR. Not only
17 did that, but I was familiar with -- with that on
18 numerous occasions of doing that, and so I think
19 that's what the discussion was about.

20 Q. Do you know when Bob Faye was retained?

21 A. I don't know the date.

22 Q. But as of this day, August 24th, 2024,
23 you spoke with him and he was retained; is that
24 right?

25 A. That is my understanding.

1 Q. Okay. And on that same page there is
2 an entry phone call with R. Faye about review of
3 ABC One Cleaners site data 2007 to 2012. Do you
4 remember what that conversation was about?

5 A. I think the question came up in some of
6 the production that DOJ provided to the -- the
7 plaintiffs about what documents we may have had at
8 ATSDR and what documents either the Department of
9 Navy provided us --

10 Q. Sure.

11 A. -- in conducting the Tarawa Terrace
12 reports. And so that ABC Weston 2007 report came
13 up.

14 Q. Okay. And then if you turn the page to
15 the page ending 640.

16 A. Okay.

17 Q. There are a couple of entries for
18 December 28th and 29.

19 A. Right.

20 Q. The 29th entry is, review R. Faye
21 rebuttal report, call with R. Faye. Do you recall
22 that conversation?

23 A. On the 28th?

24 Q. 29th.

25 A. 29th. I'm sorry. I don't specifically

1 recall that -- that phone call. I mean, I don't
2 know what exactly I was reviewing in his report.
3 He may have asked me my opinion of something he was
4 writing and being that he was retained and I was
5 retained, I probably provided an opinion.

6 Q. Okay. We have not received a rebuttal
7 report from Bob Faye. One has not been disclosed.
8 I'm just wondering if you knew why that was?

9 MR. DEAN: Object to the form of the
10 question. It's confidential attorney work product
11 and I would instruct the witness not to answer the
12 question.

13 BY MR. ANWAR:

14 Q. Do you know if Bob Faye intends to
15 testify in this case?

16 A. I've -- I'm not involved in that part
17 of being retained as to who does and does not
18 testify, so I do not know.

19 Q. Okay. Other than sort of what's
20 reflected on these invoices, have you spoken with
21 Bob Faye about any other aspect of your work on
22 this case?

23 A. Well, just in reviewing the original
24 ATSDR reports where he was the primary author,
25 making sure I understood what he was writing about

1 or what his intent was.

2 Q. Sure.

3 A. For example, the Chapter F, fate and
4 transport model, I wanted to clarify, you know,
5 technically clarify something.

6 Q. When would that have taken --
7 conversation taken place?

8 A. Last week sometime.

9 Q. I also noticed from some of the entries
10 on your invoices that you exchanged some e-mails
11 with Jerry Ensminger; is that right?

12 A. If you could -- can you point me to
13 exactly where they -- they are?

14 Q. I don't -- I don't -- I can look during
15 one of the breaks --

16 A. Okay. Okay.

17 Q. -- and point you directly, but do you
18 recall exchanging e-mails with Jerry Ensminger or
19 talking with him during the course of your work on
20 this case?

21 A. He has called me a couple of times.

22 Q. Okay.

23 MR. DEAN: I think you might have
24 marked some of that in the first depo, if I
25 remember correctly, just for what it's worth to

1 help him remember. I think you might have marked a
2 couple that were produced.

3 BY MR. ANWAR:

4 Q. When is the last time you spoke with
5 Mr. Ensminger?

6 A. Sometime this past month he called me.

7 Q. What was that conversation about?

8 A. He wanted to know my opinion of the
9 ATSDR models. He did mention geometric bias
10 specifically, but whether the models were, you
11 know, accurate, did they overpredict, underpredict.

12 Q. Do you know why he called you in the
13 last month about that, about whether the models
14 were accurate?

15 A. No, he never provides a reason why he
16 calls. He just calls me. I mean, in that sense.

17 Q. You know, just in reviewing the
18 documents in the case, it seems like -- and you
19 should correct me if I'm wrong -- throughout the
20 years Mr. Ensminger has had a number of
21 conversations with you and others on the ATSDR side
22 about work that was being performed related to the
23 models and the epi studies. Is that consistent
24 with your recollection?

25 A. Well, Mr. Ensminger was a member of the

1 Camp Lejeune camp.

2 Q. Yeah.

3 A. And he probably called or talked to me
4 in that capacity because when I was at ATSDR -- and
5 I don't know what the situation is now -- they
6 would have quarterly CAP meetings, okay, and it's
7 mostly when -- if I was going to present some
8 information or whatever, I called in his capacity
9 as the -- as a CAP member. That's what I recall.

10 Q. Okay. I was just wondering if you had
11 any insight on why he called you now. Because it
12 seems like he probably has a pretty good
13 understanding of the models just from the years of
14 working with you-all. If you have any insight on
15 why he decided to call in the last month.

16 MR. DEAN: Object to the form of the
17 question.

18 THE WITNESS: No, I do not know why --
19 why he would call me, because I had not heard from
20 him in a while. I mean...

21 BY MR. ANWAR:

22 Q. Sure. And did you-all specifically
23 discuss geometric bias during that call?

24 A. Not -- not that specific verbiage, but
25 the concept and what it means.

1 Q. Okay. Now --

2 A. Those were the values -- I need to
3 clarify. Those were the values relating
4 specifically to the report, not anything additional
5 that I had done.

6 Q. Understood. Have you had any other
7 conversations with Mr. Ensminger during the course
8 of your work in this case?

9 A. I believe there's one e-mail where he
10 wanted to know if I had an award certificate where
11 we were awarded the grand prize in research from
12 the American Academy of Environmental Engineers and
13 Science in 2015, and I believe I did provide him
14 with a couple of images.

15 Q. Sure. And if my understanding -- if my
16 recollection from your prior deposition is correct,
17 Mr. Ensminger is a Camp Lejeune activist, right?

18 MR. DEAN: Object to the form.

19 THE WITNESS: I assume there's
20 different definitions for activist. I have always
21 known him as a member of the CAP and a -- I'll just
22 leave it at that. That's where I first met him and
23 that's -- even when he calls today, I still think
24 of him in terms of the Camp Lejeune CAP.

25 BY MR. ANWAR:

1 Q. And are you aware that he's a plaintiff
2 in the lawsuit as well?

3 A. No, I'm not aware of anyone who's a --
4 who's in the lawsuit.

5 Q. Is Mr. Ensminger a water modeler?

6 A. No, he is not.

7 Q. Is he an epidemiologist?

8 A. No, he's not. Let me qualify that, to
9 my knowledge, I guess.

10 Q. Sure. I also noticed in the invoices
11 at some point during the course of your work as a
12 retained expert, you spoke with Chris Portier. Do
13 you recall that?

14 A. I don't ever recall speaking with
15 Dr. Portier once I was retained here.

16 Q. Okay.

17 A. I spoke to him -- or he spoke to me
18 when I was at ATSDR. That's the last -- last time,
19 actually, I recall speaking to Dr. Portier.

20 Q. Who is Chris Portier?

21 A. Dr. Portier is a former director of the
22 Agency for Toxic Substances and Disease Registry.
23 I'm not sure when he started. Maybe 2010, perhaps,
24 and retired, my understanding is, in 2013.

25 Q. Okay. And then I noticed on the

1 invoices there were some e-mails or conversations
2 that took place with Walter Grayman; is that right?

3 A. That is correct.

4 Q. First off, let me ask you, who is
5 Walter Grayman?

6 A. Walter Grayman I would consider a
7 mentor in water distribution system modeling and
8 probably one of the godfathers of water
9 distribution system modeling using computational
10 methods.

11 Q. And why did you speak with Walter
12 Grayman?

13 A. In my capacity here or -- I don't
14 understand --

15 Q. Sure.

16 A. -- the question.

17 Q. During the course of your retention --

18 A. Right.

19 Q. -- as a -- for the plaintiffs in the
20 litigation as an expert. I noticed his name on
21 some of the invoices. Why did you speak with him
22 during the course of the litigation?

23 A. My understanding is that he was also
24 retained as an expert witness.

25 Q. Okay.

1 A. But he is no longer that. But that was
2 my initial understanding. So he had some questions
3 about the water distribution system modeling
4 because he had assisted us in conducting field
5 studies and using the -- the model, and so that's
6 probably why I spoke with him, about that.

7 Q. Do you recall any other conversations
8 that you've had with Walter Grayman during the
9 course of the litigation?

10 A. No, no.

11 Q. I wanted to -- we talked -- some of
12 this is going to overlap with our discussion during
13 the last deposition. I'm trying --

14 A. Okay.

15 Q. -- my best not to duplicate too much.
16 We talked about, in your prior deposition, sort of
17 when you started working on the Camp Lejeune water
18 modeling at ATSDR and when it concluded. And I
19 noticed in Dr. Aral's report submitted in this
20 case, he makes a statement that over the 15-year
21 period from 2000 to 2015, I had my team members
22 work with essentially EDRP at ATSDR -- and, for the
23 record, the EDRP is exposure dose reconstruction
24 program. The statement is "from 2000 to 2015, I
25 and my team members worked with other team members

1 at EDRP at ATSDR to perform analysis of Tarawa
2 Terrace, Holcomb Boulevard, Hadnot Point studies
3 related to Camp Lejeune."

4 Does that time period, 2000 to 2015, is
5 that right in terms of the work for the water
6 modeling?

7 A. For Camp Lejeune?

8 Q. Correct.

9 A. No, that is not correct. We had a --
10 as I indicated previously, we had the cooperative
11 agreement that ran every five years, and Georgia
12 Tech was the cooperative agreement university
13 partner. And so on other sites, for example, I
14 mentioned the journal article that was published in
15 2004, so we would work on other sites. We did not
16 begin working in earnest until 2003 on Camp -- Camp
17 Lejeune, at which point, if they were still part of
18 the cooperative agreement, which they were, that's
19 when they would have started or we would have
20 started to have discussions about Camp Lejeune and
21 the approaches we should be taking and things of
22 that nature.

23 Q. And that's helpful in terms of the
24 start date. And then the end date he had in his
25 report as 2015. I noted that the -- I think the

1 last Hadnot Point/Holcomb Boulevard report was
2 published in 2013. Is that consistent with your
3 understanding?

4 A. The last report series was released in
5 March 2013.

6 Q. Did -- did the work related to the
7 Hadnot Point/Holcomb Boulevard modeling at ATSDR,
8 did it conclude in March 2013 or did it go on
9 another year until 2015?

10 A. The actual modeling activities and data
11 analysis activities and report publishing concluded
12 March 2013. I may have been asked by the
13 epidemiologists to forward them the final modeling
14 results after March of 2013, but I don't recall the
15 exact date.

16 Q. Were you doing any work on the modeling
17 in the ATSDR, I guess, either Tarawa Terrace or
18 Hadnot Point/Holcomb Boulevard models, in 2015?

19 A. No, I was not.

20 Q. Okay. So the -- the time frame is just
21 slightly off a little bit in his report, it sounds
22 like?

23 A. That is correct.

24 Q. Okay. I just wanted to clarify that.

25 So you -- you worked on the ATSDR

1 models for Tarawa Terrace and Holcomb
2 Boulevard/Hadnot Point -- Hadnot Point/Holcomb
3 Boulevard for just over a decade; is that right?

4 A. Yes, that would be correct, although
5 the initial work plan development probably was in
6 early 2003 or maybe 2002, internal, internal work
7 plan.

8 Q. Understood. You said 2002, 2003?

9 A. Yes.

10 Q. Okay. 11, 12-year time frame?

11 A. That is correct.

12 Q. For the 11, 12-year time frame for the
13 work that you and your colleagues at ATSDR did
14 related to the Tarawa Terrace and the Hadnot
15 Point/Holcomb Boulevard models, correct?

16 A. That is correct.

17 Q. Okay. And during that period of time,
18 you were ATSDR's project officer for the exposure
19 dose reconstruction program, correct?

20 A. That is correct. I was the project
21 officer from the beginning of the exposure dose
22 reconstruction program, which was probably 2004 or
23 '5.

24 Q. Okay. And then you were also the --
25 the lead or the project manager for ATSDR's water

1 models on Camp Lejeune, correct?

2 A. That is correct.

3 Q. Okay. Now, when you were employed
4 during this period of time by ATSDR working on the
5 Camp Lejeune modeling, you were a federal
6 government employee, correct?

7 A. That is correct.

8 Q. Do you remember what grade you were
9 sort of in the GS system in terms of employed?

10 A. It changed over time because I was
11 classified under the Office of Personnel
12 Management's research grade evaluation system.

13 Q. Sure.

14 A. So I was promoted twice from a GS-13,
15 which is where I came into ATSDR, applied to be
16 reclassified as -- under the research grade, and
17 then was promoted to a GS-14 and a GS-15.

18 Q. When were you promoted to a GS-15?

19 A. I would have to look at my electronic
20 personnel file.

21 Q. Sure. Were you a GS-15 by the time you
22 were working on the Camp Lejeune water models at
23 ATSDR?

24 A. Somewhere in there. Not necessarily at
25 the beginning.

1 Q. Okay. I am going to hand you what I'm
2 marking as Exhibit 8.

3 (DFT. EXHIBIT 8, Federal employee
4 profile for Morris L. Maslia, was marked for
5 identification.)

6 BY MR. ANWAR:

7 Q. I -- I looked you up on the federal
8 government employee lookup tool, and you're welcome
9 to look me up, too, as a federal employee. But
10 does this document I hand you accurately reflect
11 your GS grade and your salary while employed at
12 ATSDR between 2004 and 2018?

13 A. Well, it's incorrect because I retired
14 on December 31st, 2017.

15 Q. Okay. Aside from the 2018 year, for
16 the other years, does that generally look correct?

17 A. I don't recall being a GS-15 all the
18 way down to 2004 because I do recall them -- under
19 the research grade evaluation program, what they do
20 is, depending on the grade, but at the 13 and above
21 they should review you every four to five years,
22 maximum. So they would -- you -- they call in a
23 panel and have experts and then they score you on a
24 point basis. And then if you make above a
25 certain -- a certain point level, then the agency

1 has to say yes, we've got a GS-15 position
2 available or not, okay?

3 So again, I just don't recall it being
4 in 2004, but I would have to look at my own -- I
5 know you pulled this off the -- I've got my own
6 electronic personnel folder at home, or it was on
7 my ATSDR LAN drive, because they wanted everybody
8 to keep a copy of their personnel -- electronic
9 personnel folder when they went to digital versions
10 of it. So I could tell by those. I'm familiar
11 with the -- whatever it is, SF-171 form that tells
12 each year or whatever when you get promoted.

13 Q. Sure. Would the salary amounts, do
14 they look roughly right?

15 A. They -- they -- they look, from my
16 recollection, correct, yes.

17 Q. Okay. And so for that 11- or 12-year
18 period, would it be fair sort of roughly to
19 estimate that your total salary, cumulative salary,
20 during that period exceeded a million dollars,
21 correct?

22 A. I've never -- I've never added it up,
23 to be quite honest about it, so I would need to add
24 that up before...

25 Q. Okay. But if we added that up and I

1 told you it's over a million dollars, do you have
2 any reason to dispute that?

3 A. No.

4 Q. Okay. Besides your salary as an ATSDR
5 employee and the compensations and billings we've
6 discussed related to your retention or your role as
7 an expert in the litigation, have you received any
8 other compensation related to Camp Lejeune?

9 A. No, I have not, nor have I ever.

10 Q. Now, if I remember correctly -- and
11 you're welcome to refer to your CV as we're going
12 through this. It's page 121 in your expert report.
13 You started at ATSDR in 1992?

14 A. Let me just get there, so --

15 Q. Sure.

16 A. -- I'm on the page that you're
17 referring to. I started at ATSDR in 1992, that's
18 correct.

19 Q. And you retired in 2017, right?

20 A. December 31st, 2017.

21 Q. And as we just discussed, you worked on
22 ATSDR's Camp -- the water modeling related to Camp
23 Lejeune for Tarawa Terrace and Hadnot Point/Holcomb
24 Boulevard from about 2003 to 2013, 2014?

25 A. Probably. I want to say through 2013.

1 I was being funded in part at that time by the
2 Department of Navy, and so whatever they put in the
3 budget for 2014, it would not have been funded
4 by -- to my knowledge, by Camp Lejeune because the
5 modeling was completed, okay.

6 Q. Okay. And give or take, for a little
7 over -- for roughly a little over a decade, I think
8 we said 11 or 12 years, you worked on Camp Lejeune
9 water modeling at ATSDR, right?

10 A. That is correct. We did have, though,
11 again, because I was not only project chief or
12 scientific technical project officer for Camp
13 Lejeune, but I was also over the exposure dose
14 reconstruction program. We had other EDRP
15 activities and a couple of sites that we worked in,
16 not using Camp Lejeune money, but using the
17 agency's other funds.

18 Q. Okay. You started at ATSDR in '92.
19 You left in 2017, and you worked -- so that's,
20 what, roughly 25 years?

21 A. Yes.

22 Q. Okay. And you worked on Camp Lejeune
23 water modeling for close to half of that, is that
24 right, at ATSDR?

25 A. Did we say 10 or 11 years, yes.

1 Q. Okay.

2 A. Maybe slightly less. Maybe slightly
3 less, but...

4 Q. Understood. Was the water modeling for
5 Camp Lejeune a significant portion of your work
6 portfolio at ATSDR?

7 A. It was a substantial, but there were
8 other sites, as I said, prior to Camp Lejeune and a
9 couple of sites -- or a couple of analyses that
10 were not Camp Lejeune related.

11 Q. Focusing on that period between 2002,
12 2003 to 2013, what percentage of your work would
13 you say was related to the ATSDR's Camp Lejeune
14 modeling?

15 A. I'll start after about mid-2003. I
16 think that's when the ATSDR, I assume, got approval
17 from either the Marine Corps or the Navy to expend
18 the budget money on Camp Lejeune. I would say it
19 was probably 95 percent on different aspects of
20 Camp Lejeune.

21 Q. As I was looking at your -- your CV,
22 and specifically I was looking at your list of
23 publications, without looking each and every one
24 up --

25 A. Right.

1 Q. -- it's on page 130.

2 A. Okay. Okay. I'm there.

3 Q. I counted about nine or ten articles
4 that you've published related to the modeling work
5 you did on Camp Lejeune at ATSDR; is that right?

6 A. That sounds about right. It would be
7 agency reports. It would be journal articles and
8 there were some symposia presentations.

9 Q. Do you have any -- well, let me ask it
10 this way. Just ballpark, not holding you to any
11 specific number, how many publications, symposiums,
12 presentations, have you given related to the Camp
13 Lejeune water modeling?

14 A. I would really have to go and count
15 them up. I just don't feel answering truthfully if
16 I just picked a number out.

17 Q. Would you -- I think I identified nine
18 publications. Would you agree over ten?

19 A. Yes.

20 Q. Do you think over 20?

21 A. If you count some symposia
22 presentations where we had to actually submit a
23 manuscript, sometimes we did, and others we just
24 did, like, PowerPoint presentations, okay?

25 Q. So potentially over 20?

1 A. Right, yes.

2 Q. What about over 30?

3 A. That may come under other activities.
4 Like I was adjunct professor at the Emory
5 University Rollins School of Public Health, and so
6 I would give some case studies to my students using
7 what was publicly released from Camp Lejeune. And
8 I may have been asked by other ATSDR professionals
9 who were teaching other courses on statistics or
10 risk assessment at Emory to be a guest speaker for
11 my -- and I would give, again, things we had
12 already published or publicly released by the
13 agency about Camp Lejeune.

14 Q. Would you agree that the work you did
15 on the water modeling for Camp Lejeune at ATSDR was
16 a significant part of your career at ATSDR?

17 A. I would say it was substantial. It
18 would not be the complete time.

19 Q. And I saw on your CV that you, in 2015,
20 received the 2015 Excellence and Environmental
21 Energy Award, the grand prize, from the American
22 Academy of Environmental Engineers and Scientists;
23 is that right?

24 A. That is correct, sir.

25 Q. And was that related to the water

1 modeling work that you did at ATSDR on Camp
2 Lejeune?

3 A. Yes, it was.

4 Q. What is AEEES?

5 A. It's a professional organization, as
6 the name implies, of environmental engineers and
7 other engineers and scientists, and they run a
8 competition each year with different categories,
9 for example, consulting small projects, government
10 projects, and research projects.

11 Q. Okay.

12 A. And I mean, they put on webinars and
13 things of that nature, continuing education
14 courses.

15 Q. I saw the picture that you produced
16 holding the award. You looked very happy. What
17 did that award mean to you?

18 A. It meant -- it was especially
19 meaningful not just to me, but for our entire team
20 because an outside organization recognized the
21 significance of our work and contribution about
22 Camp Lejeune to the profession.

23 Q. Are you proud of that award?

24 A. Yes, I am.

25 Q. Would you describe it as one of the

1 highlights of your career?

2 A. Yes.

3 Q. How would you describe the work you've
4 done on the Camp Lejeune water modeling at ATSDR in
5 the context of your career?

6 A. I would say it was one of the similar
7 works that I have done, just like prior to Camp
8 Lejeune, Dover Township. Toms River, New Jersey
9 was also a similar piece of work. It was at the
10 U.S. Geological Survey, the work on the Floridian
11 RASA was also a similar piece of work.

12 Q. Now, in your prior deposition we
13 briefly discussed some e-mail exchanges that you
14 had with the Bell Legal Group in a 2009/2010 time
15 frame. Do you recall that?

16 A. In the September deposition?

17 Q. Correct.

18 A. I don't specifically recall that, but
19 if it's in the verbatim transcript, then we
20 discussed it.

21 Q. Okay. I'll show you one of them later.

22 A. Okay.

23 Q. And then you were retained by the Bell
24 Legal Group in July 2022 to serve as an expert in
25 this litigation, right?

1 A. That is correct.

2 Q. I was wondering what -- what led you or
3 how did you decide to serve as an expert witness in
4 this case?

5 A. Well, after I retired, of course, I --
6 I did a few consulting jobs just to keep in the
7 profession, keep my mind fresh. And then I was
8 approached and I felt because I had probably the
9 most internal knowledge -- not internal ATSDR, but
10 about the modeling I'm talking about, about what --
11 what we did, what the results meant, our confidence
12 in them, and that I could advise them on those
13 aspects of it.

14 Q. Are you -- how do I ask this? Is one
15 of the factors you considered in serving as an
16 expert in a litigation helping plaintiffs pursue
17 their claims related to exposure to Camp Lejeune
18 water?

19 A. That never -- that was never discussed
20 with me and that was never my -- my understanding,
21 but rather that I was a technical expert on water
22 modeling.

23 Q. Do you want to help the plaintiffs in
24 this case pursue their claims related to exposure
25 to Camp Lejeune water?

1 MR. DEAN: Object to the form of the
2 question.

3 THE WITNESS: That really would be a
4 legal question. I'm not really involved in legal
5 aspects other than being retained to explain what
6 we did, what I did, and the meaning of the work at
7 -- the water modeling that came from Camp Lejeune.

8 BY MR. ANWAR:

9 Q. And I guess I'm not asking you sort of
10 in the legal sense of whether your work is being
11 used to support the plaintiffs. I'm just asking
12 you personally, do you want to help the plaintiffs
13 in the litigation?

14 MR. DEAN: Object to the form of the
15 question.

16 THE WITNESS: When we did work at ATSDR
17 and even when I was at the USGS, we did what I
18 would classify as science in the public's interest,
19 okay? And so it's important to me that the public
20 understands what we did and how we did it, and if
21 it can help them come to a better understanding of
22 what occurred at Camp Lejeune or Toms River, Dover
23 Township, New Jersey, then that's a good -- good
24 use of my time, expertise, and the taxpayer's
25 money.

1 BY MR. ANWAR:

2 Q. So does your desire to -- or your
3 involvement in the litigation, does that stem from
4 a desire to explain the work that you did related
5 to Camp Lejeune at ATSDR?

6 A. Yes, yes.

7 Q. Do you feel like your work is under
8 attack in the litigation?

9 A. Not personally under attack. I believe
10 there's been mischaracterization of the work and
11 perhaps at different points misunderstanding of
12 what we were tasked with or charged with doing and
13 the reliability of the work.

14 Q. Do you --- is one of the motivating
15 factors in serving as an expert for the plaintiffs,
16 is it to defend your work?

17 MR. DEAN: Object to the form.

18 THE WITNESS: Well, I think if I'm
19 asked a question about our work, I'm defending
20 the -- the work, okay? So -- so but my objective
21 is not necessarily to be hired so I can defend what
22 we did. I would like to think that more of
23 explaining what we did and explaining, you know,
24 assumptions, limitations, and data analyses and
25 things of that nature.

1 BY MR. ANWAR:

2 Q. Aside from sort of the scientific
3 explanation portion of it or defending or
4 explaining your work, is money a motivating factor
5 at all serving as an expert?

6 A. Not at all, not at all.

7 Q. If the Court were to say, hey, the work
8 that you did at ATSDR was very fine, but we don't
9 -- we, the Court, don't believe it's appropriate
10 for use in this -- this case, how would that make
11 you feel?

12 A. Well, I would have to understand or be
13 there when someone said -- said that. That's sort
14 of a hypothetical. And I've never looked at the
15 work as defending it because the Court is going to
16 say, we don't believe it, okay? That's the best I
17 can answer.

18 Q. Okay. We'll talk a little bit more
19 about some of these other subjects later in the
20 deposition. Did you feel like you were defending
21 your work from the National Research Council?

22 MR. DEAN: Object to the form.

23 THE WITNESS: You mean, the results of
24 -- of their report?

25 BY MR. ANWAR:

1 Q. I guess, did you perceive -- let me ask
2 it differently. Did you perceive the National
3 Research Council's comments on the ATSDR Camp
4 Lejeune water modeling to be an attack?

5 MR. DEAN: Object to the form.

6 THE WITNESS: I believe and I believe
7 we have explained, on a couple of occasions,
8 internal documents as well as the published article
9 in Groundwater, that it was a mischaracterization
10 and misunderstanding and there was what appeared to
11 be -- because I requested additional meetings and
12 they would not meet with us. And I believe they
13 made their -- part of their decision -- I didn't
14 review the entire report, so I'm not talking about
15 the toxicology or the epi or the rest or anything
16 like that.

17 Q. Sure.

18 A. But they are all in conclusion that
19 they -- there was a misunderstanding,
20 mischaracterization, of some of the key things. So
21 yes, I mean, it's...

22 Q. Yes, it was an attack, is what
23 you're --

24 A. I wouldn't call it an attack, no. I
25 would say it was a mischaracterization and

1 misunderstanding.

2 Q. Okay. What about the Navy's critique
3 of the ATSDR water modeling for Camp Lejeune? How
4 did you perceive that?

5 A. I perceived that as a very usual
6 professional discourse that you have some work,
7 whether it's a model, data analyses or whatever,
8 and you publish it, whether it's a peer-reviewed
9 journal or peer-reviewed report, and the Navy had
10 some technical comments on the report, and so we
11 addressed them, in other words. So -- and until
12 this day, I still perceived it as a professional
13 exchange.

14 Q. What about Prabhakar Clement's --
15 Dr. Clement's article?

16 A. Right.

17 Q. How did you perceive that?

18 A. At the time it was published, which I
19 believe is 2010, it came right after the
20 publication of the NRC report. And again, I
21 thought there were some misunderstandings and
22 mischaracterizations. I do understand now that
23 part of it was sort of philosophical. In fact, he
24 mentioned that in his rebuttal to us. He was
25 looking at more philosophical issues, but I felt

1 the need to respond editorially to Dr. Clement's
2 article.

3 Q. Sure. Now, in the instance of the NRC
4 and the Navy and Dr. Clement, you did respond to
5 each one of those, correct?

6 A. The -- to the NRC we wrote or I -- I
7 oversaw an internal document, okay, and advised my
8 management chain and leadership that we needed to
9 respond to the NRC, I guess, agency, and they and
10 CDC quickly invoked the 11th commandment, thou
11 shall not critique the NRC.

12 Q. Why do you think that is?

13 A. I have no idea, but we point -- and
14 that internal document was very -- I mean, it was
15 very technically oriented in going -- I wouldn't
16 say line by line, but topic by topic and explaining
17 where we saw some issues with the NRC report. And
18 I do know that -- I believe it was Dr. Portier,
19 when he -- Dr. Portier in 2009 was not director of
20 ATSDR, but when he became director, I provided him
21 with a copy of that internal -- it's called
22 document, okay, it wasn't a memo or anything like
23 that. And he had a couple of topics in his letter
24 to -- and I forget who he wrote exactly to, but
25 about -- about our work, about the NRC report.

1 Q. If I'm understanding you correctly, you
2 wanted to respond to NRC, correct?

3 A. Yes.

4 Q. Okay. And you had put together a
5 response?

6 A. That is correct.

7 Q. But the response was kept, for whatever
8 reason, by CDC and ATSDR, internal, correct?

9 A. I know by ATSDR. I don't know if it
10 ever made it up to CDC --

11 Q. Okay.

12 A. -- that's over ATSDR, but it did make
13 it up through my management chain, okay?

14 Q. And it was kept internal, correct?

15 A. That is my understanding.

16 Q. Okay. And you did respond to the
17 Navy's comments or critiques, correct?

18 A. That is public information on the ATSDR
19 website, yes.

20 Q. Okay. That -- there's this ATSDR
21 report that's -- we'll look at it later, but it's
22 sort of named response to the Navy's letter. Did
23 you draft that response?

24 A. Yes.

25 Q. Okay. And then --

1 A. With assistance of team members and
2 some epidemiologists.

3 Q. Understood. And the article that you
4 published along with, I believe, Dr. Aral and some
5 of the other ATSDR colleagues, Jason Sautner, maybe
6 Rene, a response to Dr. Clement's article as well,
7 correct?

8 A. That is correct, yes, the team. I
9 listed all of the team. When I say team, from an
10 agency standpoint, so that's why there are some
11 epidemiologists that's coauthors on it as well.

12 Q. And when I say -- because we were
13 talking -- just for purposes of the record, because
14 we were talking about the 2000 Clement article,
15 when I'm talking about Dr. Clement's article now,
16 it's the article, I think, in the mid-2000s, 2010,
17 2011, focused on hindcasting, correct?

18 A. That is correct.

19 Q. Okay. Did you introduce the
20 plaintiffs' lawyers to -- in this case to
21 Dr. Konikow?

22 A. Yes, I did. When I say introduced, let
23 me clarify. I think they were looking for a name
24 of somebody who was nationally renowned in fate and
25 transport modeling, and so from my days at USGS, I

1 knew Dr. Konikow.

2 Q. Okay. So you connected Dr. Konikow
3 with the Plaintiffs' Leadership, correct?

4 MR. DEAN: Object to the form.

5 THE WITNESS: I just provided contact
6 information.

7 BY MR. ANWAR:

8 Q. Okay. Did you introduce or provide
9 contact information to the plaintiffs' lawyers in
10 this case for Rob -- Bob Faye?

11 A. Yes.

12 Q. When did you do that?

13 A. I really don't remember.

14 Q. Was -- was it in the last 30 days?

15 A. It was prior to that.

16 Q. Last 60 days?

17 A. I've been, as you said, involved in
18 this case since July of 2022.

19 Q. I won't hold you to a precise date.
20 Was it in 2025?

21 A. No, it was -- must have been sometime
22 in 2024.

23 Q. Do you recall whether it was before or
24 after the September 26th deposition, 2024?

25 A. It would have been before.

1 Q. Did you -- do you have Bob Faye's
2 contact information?

3 A. Yes, I do.

4 Q. What is it?

5 A. I've got a phone number and an e-mail.

6 Q. Okay.

7 MR. DEAN: Hold on. I have his info as
8 well. I don't mind -- he's a retained consulting
9 expert. He's not been disclosed as an expert. So
10 if you were to get his contact information, I would
11 request that you not talk to him -- talk to
12 Mr. Faye without me being present or on the phone.

13 MR. ANWAR: Okay.

14 MR. DEAN: If at all because he is,
15 again, a confidential consulting expert for the
16 PLG.

17 MR. ANWAR: Okay. We can discuss that
18 separately.

19 MR. DEAN: Sure.

20 BY MR. ANWAR:

21 Q. Did you introduce or provide contact
22 information for any of the other experts for the
23 plaintiffs?

24 A. Just the two that you have mentioned,
25 Dr. Konikow and Mr. Faye.

1 Q. In documents that we received from
2 Dr. Konikow, there was an e-mail in there between
3 you and Dr. Konikow. I think you were e-mailing
4 him, and it included a line, it said "don't know if
5 Kevin explained the politics of the case now, but
6 it's quite eye opening to me." Do you recall that?

7 A. I may have said that in the e-mail. I
8 mean, if I saw the e-mail, then we could see.

9 Q. Sure. What did you mean by the
10 politics of the case?

11 A. Well, Camp Lejeune has always been
12 surrounded, you know, from a political standpoint,
13 okay, because you have different parties, meaning
14 the Navy, the CAP, ATSDR, and so on, having
15 different points of view, so that makes it -- and
16 you're in public health, which is -- always has
17 politics associated with public health. And so
18 that's what -- and then they passed or perhaps I
19 was aware -- I was aware of the Janey Ensminger
20 Act, okay. That would have been political to get
21 that passed. And I believe at the time they had
22 already passed the PACT Act, which contained the
23 section -- I forget the exact number for Camp --
24 Camp Lejeune.

25 So that's what I was referring --

1 referring to, is most of the time I know the work
2 that -- I can't speak for Dr. Konikow, but the work
3 that I did at, say, USGS, okay, and even most of
4 the work that I did at ATSDR, with the exception of
5 Dover Township, Toms River, and Camp Lejeune, were
6 not -- did not have necessarily political aspects
7 to them in terms of legislation being passed.

8 Q. Understood.

9 A. Things like that.

10 Q. I -- and we talked about this in your
11 last deposition, and I know that you were part of a
12 group from ATSDR that testified to Congress,
13 correct?

14 A. That would have been in, like,
15 June 12th, 2007.

16 Q. Okay. And that was about Camp Lejeune,
17 correct?

18 A. Right.

19 Q. Was it a House Committee Hearing, if I
20 remember correctly?

21 A. It was a Senate Subcommittee Hearing.

22 Q. Oh, I'm sorry.

23 A. And I actually was -- did not provide
24 the testimony. I believe it was Dr. Tom Sinks. I
25 was just there, I guess, as a -- again, a technical

1 expert, but I was seated at the table.

2 Q. Okay. Have you had any direct
3 conversations -- have you directly had any
4 conversations with any Congress members about Camp
5 Lejeune?

6 A. No, I have not.

7 Q. You have a quote in your -- your e-mail
8 signature block currently from Nobel prize
9 physicist Richard P. Feynman. Do you know what I'm
10 talking about?

11 A. Dr. Feynman, yes, yes, I do.

12 Q. And I believe the quote is "I would
13 rather have questions that can't be answered than
14 answers that can't be questioned"; is that right?

15 A. That is correct.

16 Q. Okay. Who is Richard P. Feynman?

17 A. He's a Nobel -- he's since deceased,
18 but he was a very young Nobel prize winning
19 physicist. And the laypeople probably know him for
20 his participation on and his famous experiment on
21 the Challenger explosion.

22 Q. Okay.

23 A. And I believe that's where he put that
24 quote in, but I wouldn't swear -- swear to it, and,
25 in fact, I just bought a copy of -- of a book about

1 -- about him.

2 Q. Okay. Why did you include that quote
3 in your signature block?

4 A. I thought it's appropriate to
5 everything in -- in life. It's very succinct.
6 Don't be afraid to say you don't know the answer,
7 but that's better than saying don't ask me the
8 question.

9 Q. Would you agree that that quote is
10 applicable to all of the work that you've done as
11 an engineer or an environmental scientist?

12 A. I would say it's a more philosophical
13 statement, okay?

14 Q. One that would apply to -- and you said
15 any aspect of life, right?

16 MR. DEAN: Object to the form.

17 THE WITNESS: Well, that's how I am
18 interpreting it, okay? I wasn't there when
19 Dr. Feynman stated it or published it, so I don't
20 know what was in his mind, but it seemed to me,
21 from a philosophical standpoint, it, you know, it
22 resonates with me just philosophically.

23 BY MR. ANWAR:

24 Q. Okay. We have been going for a little
25 over an hour. Do you want to -- should we take

1 another break?

2 A. Sure, yes.

3 THE VIDEOGRAPHER: Okay. We're going
4 off record. The time is 11:23 a.m.

5 (A recess transpired.)

6 THE VIDEOGRAPHER: Okay. We are going
7 back on the record. The time is 11:32 a.m.

8 BY MR. ANWAR:

9 Q. We are back on the record from a short
10 break. Mr. Maslia, are you okay to continue?

11 A. Yes, I am.

12 Q. Okay. And did you speak with your
13 lawyer during the break?

14 A. No, I did not.

15 Q. Could you turn to page 145 of your
16 expert report?

17 A. Yes. Okay.

18 Q. 145 is a -- includes on it a figure or
19 a chart laying out the team that worked on the
20 ATSDR water modeling for Tarawa Terrace and Hadnot
21 Point/Holcomb Boulevard, their titles and sort of
22 their roles; is that right?

23 A. That is correct.

24 Q. Okay. And you've included Xs. A dark
25 green X for senior author of a report chapter. A

1 light green X for a contributing author of a report
2 chapter, and then a light red O for project
3 management and coordination; is that right?

4 A. That's correct.

5 Q. Okay. As I -- as I look at this
6 figure, is it fair to say that you were a senior
7 author or a contributing author or project managed
8 and coordinated every single chapter of the Tarawa
9 Terrace model reports and the Hadnot Point/Holcomb
10 Boulevard model reports?

11 A. I was the technical or scientific
12 project officer over all of the Camp Lejeune water
13 modeling.

14 Q. Okay.

15 A. It's just not shown on here. You can't
16 print three different colors on the same box, okay?
17 So -- and then where the dark Xs are, obviously I
18 was the senior author on that and contributed to
19 most of the reports, but there were some individual
20 chapters or supplements that I did not have
21 authorship of.

22 Q. But you still oversaw and managed,
23 correct?

24 A. Yes, yes.

25 Q. Coordinated, managed?

1 A. Yes.

2 Q. Okay. In coordinating and managing
3 every chapter of the two models, Tarawa Terrace and
4 Hadnot Point, would you have reviewed and approved
5 every chapter on each of those reports?

6 A. I would have reviewed and then said
7 it's ready to go to -- through the agency peer
8 review and then to external -- or if any review
9 comes back and then go out to external peer review.
10 It's ultimately up to the agency, I guess, Office
11 of Science and CDC Office of Science to give the
12 final release.

13 Q. Understood. Would you be the one to
14 make the decision it's ready to go to the next step
15 of the process, the peer review process?

16 A. Yes.

17 Q. And in making that final decision,
18 would you -- for each chapter or each report, would
19 you have an opportunity to review and comment and
20 suggest edits to particular chapters of either of
21 the model reports?

22 A. Yes.

23 Q. Okay. We talked about, at the
24 beginning of the deposition, the -- sort of the
25 most recent calculations you've run --

1 A. Yes.

2 Q. -- with respect to geometric bias.

3 A. Right.

4 Q. As to the Tarawa Terrace model,
5 correct?

6 A. Yes, yes.

7 Q. That was in the last month or so,
8 correct?

9 A. That is correct, sir.

10 Q. Aside from that, do you stand by every
11 chapter of the Tarawa Terrace model?

12 A. Yes.

13 Q. And is that also true -- do you stand
14 by every chapter of ATSDR's Hadnot Point model?

15 A. Yes.

16 Q. Again, aside from that geometric bias
17 discussion that we had, is there anything that
18 you're aware of that should be changed or corrected
19 in either the Tarawa Terrace set of model reports
20 or the Hadnot Point/Holcomb Boulevard set of model
21 reports?

22 A. There's issues brought up by the DOJ's
23 experts that I've responded to.

24 Q. Okay.

25 A. Okay. Absorption parameters, for

1 example, the results, and they do not impact at all
2 the results of the Tarawa Terrace analyses.

3 Q. Understood. In preparing your expert
4 report, either the primary -- the main one or the
5 rebuttal report, did you rerun either of the Tarawa
6 Terrace or the Hadnot Point and Holcomb Boulevard
7 model?

8 A. No.

9 Q. Were your reports, the main report and
10 the rebuttal report, were they based on the ATSDR
11 reports that are publicly available now?

12 A. You're talking about my expert report?

13 Q. Correct.

14 A. Yes, they were all -- whatever was
15 publicly available on the ATSDR website, which
16 would be all the Tarawa Terrace expert panel
17 reports, response to the Navy, and the Hadnot
18 Point/Holcomb Boulevard series of reports.

19 Q. Okay.

20 A. And that's what my expert report would
21 rely on.

22 Q. Okay. And I think you've clarified
23 that for me. Basically what I'm getting at is you
24 didn't, you know, go and put MODFLOW on your
25 computer and run the groundwater model again. You

1 didn't go and get MT3DMS and run the fate and
2 transport model again, correct?

3 A. Not at all, no, I do not have those on
4 my computer.

5 Q. And same with EPANET and the water
6 distribution model, you didn't --

7 A. I did not rerun it, although I do have
8 EPANET on my computer at home.

9 Q. Okay. Do you consider yourself an
10 expert in groundwater modeling generally?

11 A. Yes.

12 Q. Any particular aspects of groundwater
13 modeling that you consider yourself an expert or do
14 you consider yourself an expert in all of it?

15 A. I would consider myself an applied
16 researcher, so applying the available models that
17 have been developed by others to sites, okay, and
18 doing that as well as experience with
19 post-calibration analyses to assess the goodness of
20 fit of models.

21 Q. In terms of groundwater modeling, do
22 you consider yourself an expert in groundwater flow
23 modeling?

24 A. Yes.

25 Q. Do you consider yourself an expert in

1 contaminant fate and transport modeling?

2 A. I would consider myself very
3 knowledgeable.

4 Q. Okay. But not an expert?

5 MR. DEAN: Object to the form of the
6 question.

7 THE WITNESS: I mean, I'm an expert
8 from the standpoint that I've had courses in
9 contaminant fate and transport. I applied some and
10 -- but I don't do it -- I did not do it routinely,
11 but I have run contaminant fate and transport
12 models.

13 BY MR. ANWAR:

14 Q. Do you consider yourself an expert in
15 water distribution modeling?

16 A. Yes.

17 Q. Why do you consider yourself an expert
18 in water distribution modeling?

19 A. Well, we've applied -- when I say we,
20 at ATSDR, we applied water distribution system
21 modeling to a couple of sites: Dover Township,
22 Toms River, New Jersey as well as Camp Lejeune.
23 And we were -- for the Dover Township analysis, we
24 were actually awarded the best practice oriented
25 paper in 2000 by the Journal of Water Resources

1 Planning and Management based on the work in field
2 monitoring of the water distribution system in Toms
3 River, New Jersey. So yes, I would consider myself
4 an expert there.

5 Q. Okay. Let's turn to page 17 of your
6 report.

7 A. Of my expert?

8 Q. Your main report, yes.

9 A. Expert report?

10 Q. Correct.

11 A. Page 17. Okay.

12 Q. Page 17 contains a summary of your
13 opinions; is that right?

14 A. It has one item.

15 Q. Oh, I'm sorry. 17 and 18.

16 A. And 19.

17 Q. And 19. 17 through 19?

18 A. Yes.

19 Q. Starting on 17 is a section entitled
20 "summary of your opinions" and it concludes on page
21 19, right?

22 A. Yes.

23 Q. Okay. I wanted to focus on opinion
24 number three. It states, "the reconstructed
25 simulated monthly mean contaminant concentrations

1 of PCE, TCE, 1-2 DCE, vinyl chloride, benzene at
2 Tarawa Terrace, Hadnot Point and Holcomb Boulevard
3 are contained in ATSDR report appendices A-2 for
4 Tarawa Terrace, A-3 and A-7 for Hadnot Point, and
5 A-8 for Holcomb Boulevard." Did I read that
6 correctly?

7 A. Yes.

8 Q. Okay. And then opinion three goes on.
9 It says, "these reconstructed monthly mean
10 concentrations are also included in this report in
11 appendixes H, I, J and K" -- well, let me -- "these
12 reconstructed monthly mean concentrations are also
13 included in this report in appendixes H, I, J and
14 K, comma, are reliable and represent, within
15 reasonable scientific and engineering certainty,
16 the contaminant levels in selected water-supply
17 wells and in finished water at Camp Lejeune from
18 1953 to 1996." Did I read that correctly?

19 A. That is correct.

20 Q. Okay.

21 A. The ones for Hadnot Point probably go
22 to 2008. That's what the model runs did.

23 Q. Okay.

24 A. I'm not sure about the '96. That may
25 have been when the wells -- all the wells -- I --

1 but I do recall, because we had 2008 or 2006
2 through 2008, a remediation rate of Hadnot Point
3 that ran the model all the way out to 2008. So I
4 would...

5 Q. When you say there that the
6 reconstructed mean -- or reconstructed monthly mean
7 concentrations in the ATSDR reports are reliable
8 and represent, within reasonable scientific and
9 engineering certainty, what do you mean by
10 reasonable scientific and engineering certainty?

11 MR. DEAN: Object to the form.

12 THE WITNESS: When you conduct
13 scientific and engineering analysis application and
14 you come up with the value of -- that you believe
15 is the most likely value and -- then there's
16 always, you know, plus or minus a certain percent,
17 okay, and that's accepted. That's a pragmatic
18 engineering approximation to a modeling problem,
19 okay? You do the best you can and see if the level
20 of uncertainty is way beyond the information that
21 you have in terms of giving a reliable solution or
22 if it's within, then -- but there's always some --
23 some differences or errors in any of the solutions.

24 Q. When you say reliable there, what do
25 you mean? Is that --

1 A. Reliable, to me, means that -- and I'm
2 going to say for their ATSDR analyses, of course,
3 that are published -- somebody could pull that off
4 the shelf or off -- offline, I guess, now, and with
5 the model input files, duplicate what we did, okay?

6 Q. In this opinion, are you stating -- are
7 you opining that the reconstructed monthly mean
8 concentrations in the ATSDR reports are accurate
9 within a reasonable degree -- or reasonable
10 scientific and engineering certainty?

11 A. Yes.

12 Q. So it's your opinion that the simulated
13 monthly mean concentrations are accurate within
14 reasonable scientific and engineering certainty?

15 A. They are the most likely values to
16 occur.

17 Q. And --

18 A. Or to have occurred.

19 Q. When we're talking about reasonable
20 scientific and engineering certainty, help me
21 quantify that into a percentage. Are they
22 50 percent accurate, 75 percent accurate, 51
23 percent? Are they 90 percent likely to be
24 accurate?

25 MR. DEAN: Object to the form of the

1 question. Calls for legal conclusion.

2 THE WITNESS: Depending on the
3 application, not necessarily just on Camp Lejeune,
4 but in -- generally speaking, it depends on a lot
5 of factors. The quality of the field data. How
6 you constructed the model. What your calibration
7 targets may have been, or at least you try to
8 figure them out, and so each application will have
9 a different level of uncertainty, okay, and
10 reliability.

11 BY MR. ANWAR:

12 Q. What do you mean by depending on the
13 application?

14 A. Well, for example, we did water
15 distribution system modeling, okay? Water
16 distribution system modeling takes hour time steps,
17 not monthly, but hour time steps. And we measure
18 and we gather data because -- we personally
19 gathered them both in -- at Dover Township and at
20 Camp Lejeune. We had 15-minute readings per hour,
21 okay? So that's more data. So then you have to
22 assess that model based on the data that you have
23 and can you accept the difference between the
24 modeling results and the data that you -- that you
25 have and the way you interpret the data.

1 In other instances you may have monthly
2 data or sporadic data, and so the level of
3 reliability may change. And it also depends,
4 again, how you constructed the model. The size of
5 the grid, how you hydrogeologically conceptualized
6 the model. There's a lot of factors that go --go
7 into there, so you just can't -- I don't think it's
8 accurate to say on a blanket statement there's this
9 uncertainty in terms of percent or not percent, you
10 know.

11 Q. If the -- there is uncertainty to the
12 simulated monthly mean contaminant concentrations,
13 why were they -- those contaminant concentrations,
14 I'm just wondering, why were they produced in this
15 -- kind of this table format at the -- in multiple
16 places in the report, but do you know what I'm
17 referring to, at the end of Appendix A for Tarawa
18 Terrace, for instance?

19 MR. DEAN: Object to the form of the
20 question.

21 THE WITNESS: Can I just take a look at
22 Appendix A?

23 BY MR. ANWAR:

24 Q. Sure. Here, we'll go ahead and mark it
25 -- mark them both.

1 A. Okay. Oh, I've got a copy right here
2 that's unmarked. That's A. No, that's not A.
3 Here's Tarawa Terrace.

4 Q. Okay. I'll give you the one for the
5 court reporter.

6 MR. DEAN: Just use that.

7 THE WITNESS: Okay. Okay.

8 (DFT. EXHIBIT 9, Analyses of
9 Groundwater Flow, Contaminant Fate and Transport,
10 and Distribution of Drinking Water at Tarawa
11 Terrace and Vicinity, U.S. Marine Corps Base Camp
12 Lejeune, North Carolina: Historical Reconstruction
13 and Present-Day Conditions, Chapter A, Summary of
14 Findings, Bates-stamped
15 CLJA_Healtheffects-0000221172 through 0000221287,
16 was marked for identification.)

17 (DFT. EXHIBIT 10, Analyses and
18 Historical Reconstruction of Groundwater Flow,
19 Contaminant Fate and Transport, and Distribution of
20 Drinking Water Within the Service Areas of the
21 Hadnot Point and Holcomb Boulevard Water Treatment
22 Plants and Vicinities, U.S. Marine Corps Base Camp
23 Lejeune, North Carolina, Chapter A, Summary and
24 Findings Bates-stamped CLJA_Healtheffects-000022136
25 through 0000221535, was marked for identification.)

1 THE WITNESS: So based on the Appendix
2 2 in Tarawa Terrace?

3 BY MR. ANWAR:

4 Q. I am talking about Appendix A3 and A --
5 A3.

6 A. A -- in Tarawa Terrace it's Appendix
7 A3. It's questions and answers.

8 Q. Oh, I'm sorry. I have the wrong one.
9 You're probably right. A2, yeah.

10 A. Okay. A2. Okay. Could you repeat the
11 question?

12 Q. Sure. I guess given the uncertainty
13 and the -- the -- the application being important,
14 I was just wondering why were these concentrations
15 presented in the format that they were in A2?

16 A. By format, what do you mean?

17 Q. The summary -- I mean, you -- for
18 instance, can a person go on page A90 --

19 A. Okay. Hold on. A90. Okay.

20 Q. Stress period, 301, is for January of
21 1976 and the model simulated a PCE monthly mean
22 concentration of 73.96 micrograms per liter; is
23 that right?

24 A. That's directly, yes, from the model
25 output.

1 Q. Sure.

2 A. Okay.

3 Q. Do you know for sure that's what the
4 PCE concentration was in micrograms per liter in
5 January of 1976?

6 A. I would say the most likely value was
7 74 micrograms per liter, just rounding.

8 Q. Okay.

9 A. Most likely.

10 Q. Didn't a moment ago you say there are
11 sort of -- there's uncertainty associated with the
12 model outputs and there's a range --

13 A. Yes.

14 MR. DEAN: Let him finish the question
15 and then if I have an objection.

16 THE WITNESS: Okay. Okay. Oh, okay.
17 No problem.

18 MR. DEAN: Can you --

19 BY MR. ANWAR:

20 Q. Didn't you say that a moment ago?

21 MR. DEAN: Object to the form of the
22 question.

23 THE WITNESS: A moment ago I said
24 there's -- yes, I also said there's uncertainty
25 with the data; there's, you know, uncertainty

1 exists, okay?

2 BY MR. ANWAR:

3 Q. Why wasn't this numerical data
4 presented with the uncertainty, the range, and the
5 potential error bands for the data?

6 MR. DEAN: Object to the form of the
7 question.

8 THE WITNESS: I believe it was in
9 figure -- let me see if I can find the figure here.
10 Figure -- on page A60, figure -- the figure there,
11 A26, it's presented in terms of the 95 percent
12 confidence.

13 Q. Okay. Let's turn to page -- well, let
14 me -- let me ask some just for purposes of the
15 record questions. When we're talking about Camp
16 Lejeune water modeling, we're really talking about
17 two separate water models, correct? And what I
18 mean by that is there was a model that related to
19 Tarawa Terrace and then there was a separate model
20 that related to Hadnot Point and Holcomb Boulevard,
21 correct?

22 A. I'd say there was an analysis related
23 to Tarawa Terrace.

24 Q. Sure.

25 A. And then there were subsequent analyses

1 because of the complexity of Hadnot Point and
2 Holcomb Boulevard and the interconnection related
3 to those areas.

4 Q. Was the model for the analyses for
5 Tarawa Terrace, did that actually consist of two
6 separate models?

7 A. For Tarawa Terrace? Consisted of
8 MODFLOW and MT3DMS and then a mixing model. That
9 would be three models.

10 Q. Understood. And MODFLOW is a
11 groundwater flow model -- modeling software,
12 correct?

13 A. That is correct.

14 Q. And MT3DMS is a contaminant fate and
15 transport model, correct?

16 A. That is correct.

17 Q. For Tarawa Terrace, rather than running
18 a -- sort of a water distribution model, you used
19 the simple mixing model, correct?

20 A. No, that's -- that's mixing apples and
21 oranges, okay? Let's separate off water
22 distribution system modeling. For the groundwater
23 flow analyses we ran MODFLOW, which generated
24 groundwater flow velocities of different layers.
25 That's directly imported into MT3DMS. And then we

1 applied a flow-weighted mixing because you had
2 different wells turning on and off. And then we
3 used the mixing model, which was described on page
4 A40 in equations one and two, and that was because
5 all the wells mixed at the water treatment plant,
6 and that was the final output to which we compared
7 available samples that were collected at the water
8 treatment plant.

9 Q. Understood. So you assumed in the
10 Tarawa Terrace model that the -- the water from the
11 treatment plant was the same water that the end
12 user received, correct?

13 A. Yes.

14 Q. Now, I think that's what I was getting
15 at. The -- now, the Tarawa Terrace analysis was
16 completed in 2009, right?

17 A. The last chapter was published in 2009.

18 Q. Chapter A was published roughly 2007,
19 is that...

20 A. In -- because of the -- excuse me.
21 Because of the Senate Subcommittee Hearing, there
22 was an executive summary released June the 12th,
23 2007.

24 Q. Okay.

25 A. And then the full Chapter A, summary of

1 findings, was released in July of 2007. But other
2 work had been done. Again, it was a summary
3 document, so obviously it had results in here from
4 -- it was just a matter of finalizing the reports.

5 Q. And then the Hadnot Point/Holcomb
6 Boulevard analysis, that was completed in 2013,
7 right?

8 A. March 2013, the Chapter A, summary of
9 findings, and in that situation, rather than
10 individual additional chapters, the agency decided
11 to make supplements for the other contributing
12 analyses described in the summary of findings.

13 Q. You would agree that when running a
14 groundwater flow model using, for instance,
15 MODFLOW, there is some level of uncertainty,
16 correct?

17 A. Yes, yes.

18 Q. And when you run a fate and transport
19 model using, for instance, MT3DMS, there is also
20 some level of uncertainty associated with the fate
21 and transport aspect, correct?

22 A. Yes, but there are different types of
23 uncertainty, okay? In other words, there's what's
24 referred to as scenario uncertainty, and that is
25 your understanding or conceptualizing the system

1 that can be an error before you ever get to the
2 model. There's model uncertainty. For example,
3 someone were to try to apply an analytical model,
4 which assumes constant flow field in the
5 groundwater, constant velocities, then that would
6 be uncertain -- model uncertainty.

7 Q. And so when you're -- when you're using
8 a groundwater flow model, a MODFLOW, and then
9 taking the results and putting them into a fate and
10 transport model, an MT3DMS, doesn't that certainty
11 then accumulate because you're combining
12 uncertainty -- uncertain results with even more
13 uncertain results?

14 MR. DEAN: Object to the form of the
15 question.

16 THE WITNESS: That's -- actually, if
17 you read some papers published and all of that,
18 it's a common mistake is to linearly add up
19 uncertainty. It doesn't work that way, okay? It
20 may compound it. It may get reduced or whatever,
21 but you just can't add that you've got a 10 percent
22 uncertainty or a 95 percent confident band on the
23 flow model. You just can't say, okay, well, the --
24 the transport model has 90 percent, add the two
25 together and call it 92 and a half. It doesn't --

1 it doesn't work like that.

2 BY MR. ANWAR:

3 Q. And I think you just said it could
4 compound it, though, right?

5 A. You would have to look at the -- again,
6 the specific application, the specific site that
7 you're looking at, the specific model that
8 you're -- you're applying.

9 Q. And I'm just quoting back your words.
10 You would agree, though, it could compound it?

11 MR. DEAN: Object to the form of the
12 question.

13 THE WITNESS: I would not necessarily
14 say it would compound it. You would have
15 uncertainty associated with each of the models that
16 you applied as well as uncertainty in the data,
17 okay, that you're calibrating to. And so that's
18 why it's, I think, critical after you complete --
19 in our case it was a four-stage calibration, to try
20 to -- or even after a third-stage, try to assess
21 the goodness of fit of the model to data. To look
22 at sensitivity analyses, to look at uncertainty
23 analyses, and probabilistic uncertainty analyses to
24 quantify that, okay?

25 BY MR. ANWAR:

1 Q. Now, let's turn to page Roman numeral
2 three.

3 A. Chapter A?

4 Q. Chapter A, correct, of Tarawa Terrace,
5 which is, for the record, Exhibit 9.

6 A. Oh, okay. I'm sorry. Roman -- the
7 foreword?

8 Q. Correct. Okay. And you would agree
9 with me, there it says, in the foreword, "the
10 ATSDR, an agency of HHS, is conducting an
11 epidemiological study to evaluate whether in utero
12 and infant, up to one year of age, exposures to
13 volatile organic compounds in contaminated drinking
14 water at U.S. Marine Corps Base Camp Lejeune,
15 North Carolina, were associated with specific birth
16 defects and childhood cancers." Did I read that
17 correctly?

18 A. Yes, you did.

19 Q. Okay. And it goes on to say "the study
20 includes births occurring during the period 1968 to
21 1985 to women who were pregnant while they resided
22 in family housing at the base." Did I read that
23 correctly?

24 A. Yes, you did.

25 Q. Then if you go to the next paragraph,

1 "historical exposure data needed for the
2 epidemiological case-control study are limited. To
3 obtain estimates of historical exposure, ATSDR is
4 using water modeling techniques and the process of
5 historical reconstruction. These methods are used
6 to quantify concentrations of particular
7 contaminants in finished water and to compute the
8 level and duration of human exposure to
9 contaminated water." Did I read that correctly?

10 A. To contaminated drinking water.

11 Q. Contaminated drinking water. Thank
12 you.

13 A. Yes, yes.

14 Q. And so you would agree with me, and I
15 think you have before, that the Camp Lejeune water
16 modeling for Tarawa Terrace was performed to
17 provide data for this epidemiological study,
18 correct?

19 A. It was conducted to address five
20 questions, as I've put in my expert report. Number
21 one was which contaminants you needed to look at.
22 These are questions posed by the epidemiologist.
23 You know, whether it's volatile organics, I mean,
24 volatiles, pesticides. Another conclusion, it's a
25 military base, so there's a numerous one. Number

1 two, when the contaminants arrived at water-supply
2 wells, monthly mean. And then number three, what
3 was the concentration in the wells. Number four,
4 what was the concentration in the water distributed
5 throughout, in this case, Tarawa Terrace. And
6 number five was what were the range of the values.
7 And we interpret that, from a modeling stance, is
8 some type of sensitivity or uncertainty analyses.

9 Those were -- those -- those were
10 always from -- I guess when we first had our first
11 kickoff meeting with the Marine Corps and Navy and
12 all of that in October of 2003, that's what we
13 presented to them.

14 Q. And that was in support of this
15 epidemiological study that was --

16 A. Yes, it was in support of.

17 Q. Of the epi study, correct?

18 A. Yes.

19 Q. Okay. And if you turn to A98.

20 A. Okay. I'm there.

21 Q. There is a -- so A98 is a page of a
22 question and answer section of Chapter A, Tarawa
23 Terrace report, which is identified as Appendix A3.
24 The question is "ATSDR's historical reconstruction
25 analysis documents that Tarawa Terrace drinking

1 water was contaminated with PCE that exceeded the
2 MCL" --

3 A. I'm not -- I'm not following where you
4 are. You said you were on A96?

5 Q. A98.

6 A. A98. And the --

7 Q. The last question --

8 A. Oh, okay. Okay. Okay.

9 Q. -- is about the results of the model,
10 "what does this mean in terms of my family's
11 health?"

12 A. Right.

13 Q. The response is "ATSDR's exposure
14 assessment cannot be used to determine whether you
15 or your family suffer -- suffered any health
16 effects as a result of past exposure to PCE
17 contaminated drinking water at Camp Lejeune",
18 correct?

19 A. That's what it says there, yes.

20 Q. And you -- your -- in the chart that we
21 looked at earlier, you're the -- the primary author
22 of Chapter A, correct?

23 A. Yes.

24 Q. Okay. And so you wrote these words,
25 correct?

1 A. I wrote these -- this section -- let me
2 go back -- the questions and answers, okay. When I
3 was at ATSDR they required you, if you conducted a
4 technical analyses modeling or whether it was epi,
5 whatever, to provide the public with a layperson's
6 understanding, okay? So I drafted these. They
7 were reworded by the Office of Communications and
8 then sent back down to me to see if I agreed with
9 their edits, which there were many. And then they
10 were published as that appendix.

11 Q. Okay. And you're the primary author?
12 You're listed first?

13 A. Yes.

14 Q. And you would stand by what's in this
15 report today, correct?

16 A. Yes.

17 Q. Okay. Now, if you would take a look at
18 Exhibit 10, which is Chapter A for Hadnot Point.

19 A. Okay. I've got a copy here. Okay.
20 Here we go. Okay. Yes, it's unmarked.

21 Q. Okay. If we turn to page three again,
22 foreword, Roman numeral three.

23 A. Okay.

24 Q. And again. There it says "ATSDR is
25 conducting epidemiological studies to evaluate the

1 potential health effects from exposures to volatile
2 organic compounds such as PCE, TCE, and benzene in
3 drinking finished water at U.S. Marine Corps Base,
4 Camp Lejeune, North Carolina." Did I read that
5 correctly?

6 A. Yes.

7 Q. Okay. "Historical exposure data needed
8 for the epidemiological studies are limited. To
9 obtain estimates of historical exposures, ATSDR is
10 using water modeling techniques in the process of
11 historical reconstruction to quantify
12 concentrations of particular contaminants in
13 finished water and to compute the level of duration
14 of human exposure to contaminated water." Did I --
15 "drinking water." Did I read that correctly?

16 A. That is correct.

17 Q. Okay. And you're also the principal
18 author of Chapter A for Hadnot Point/Holcomb
19 Boulevard, correct?

20 A. That is correct.

21 Q. Okay. And these are your words,
22 correct?

23 A. Yes.

24 Q. Okay. And so again, the -- the -- the
25 model for Hadnot Point and Holcomb Boulevard were

1 -- was done in support of an epidemiological study,
2 correct?

3 MR. DEAN: Object to the form of the
4 question. Asked and answered, too.

5 THE WITNESS: It was done to address
6 the five objectives or questions that the
7 epidemiologists asked us to -- to address.

8 BY MR. ANWAR:

9 Q. Okay. In support of the
10 epidemiological studies, correct?

11 MR. DEAN: Object to the form of the
12 question. I'll let him answer it one more time.
13 The same thing happened recently in another depo.

14 MR. ANWAR: Please --

15 MR. DEAN: You keep asking the same
16 question.

17 MR. ANWAR: If we need to get Judge
18 Jones on -- I'm going to ask you to stop making
19 speaking objections and coaching the witness.

20 BY MR. ANWAR:

21 Q. Doctor, it's a yes-or-no question. The
22 question is --

23 A. Well, no, it's not because you're
24 asking me about what the epidemiologists did. And
25 what I can tell you is I'm not an epidemiologist.

1 I don't know how they used the information, but I
2 do know that they asked us to address five
3 objectives. And one of the objectives was to
4 provide monthly mean concentrations in drinking
5 water that was delivered to residents, in this case
6 it would be Hadnot Point/Holcomb Boulevard, and
7 also express some range of confidence.

8 Q. And it was for the epidemiological
9 studies? That's what it says here.

10 MR. DEAN: Object to the form of the
11 question. The document speaks for itself.

12 THE WITNESS: That's what it says in --
13 in the report, but I would like to be clear that I
14 am not an epidemiologist, so how it's being used
15 from once we provided -- we provided -- all we
16 provided were the monthly mean concentrations.

17 BY MR. ANWAR:

18 Q. You're not an epidemiologist, but you
19 felt comfortable serving as a primary author in
20 this report that says that, right?

21 A. I felt confident because these were
22 water modeling reports and water modeling analyses,
23 yes.

24 Q. Okay. Let's go to page A182.

25 A. Okay. Okay.

1 Q. And this is Appendix A-9, another Q and
2 A section --

3 A. Yes.

4 Q. -- for the Hadnot Point and Holcomb
5 Boulevard report, correct?

6 A. That is correct.

7 Q. And per the modeling results -- in
8 terms of the modeling results, "what does this mean
9 in terms of my family's health." It again states,
10 "ATSDR's exposure estimates cannot be used alone to
11 determine whether you or your family suffered any
12 health effects as a result of past exposure to TCE
13 contaminated drinking water at U.S. Marine Corps
14 Base Camp Lejeune." Did I read that correctly?

15 A. Yes, you did.

16 Q. You have both Chapter As in front of
17 you?

18 A. Yes.

19 Q. And for the Tarawa Terrace Chapter A
20 and the Hadnot Point/Holcomb Boulevard Chapter A --

21 A. Excuse me, the mike fell off.

22 Q. Oh, no problem.

23 A. Okay. Am I okay? Okay. Sorry.

24 Q. No, it's okay. In either of the two
25 Chapter A reports for the Tarawa Terrace analysis

1 or the Hadnot Point/Holcomb Boulevard analysis, can
2 you point me to any statement in, I guess, Chapter
3 A or any of the reports that the models were
4 intended to be used for exposure determinations in
5 specific individuals?

6 MR. DEAN: Object to the form of the
7 question.

8 THE WITNESS: The purpose of these
9 reports were to document model analyses, data,
10 calibrations, to provide epidemiologists with mean
11 monthly concentrations. How they intended to use
12 it, their epidemiological studies, or how anyone
13 else intended to use it is -- does not disqualify
14 the model and is not a model limitation. The text
15 that you have read both in Chapter -- Appendices
16 Chapter A and that, that is a statement of agency
17 policy because ATSDR's a public health agency and
18 they do not conduct, to my knowledge, at least when
19 I was there, individual analyses.

20 BY MR. ANWAR:

21 Q. And so --

22 A. Right? So that's a statement that --
23 but what people can do, what anyone else wants to
24 do with -- with these models -- we had the same
25 situation when we did Dover Township. In fact, we

1 had consultants call ATSDR and wanted to know,
2 well, can you estimate for us what our exposure was
3 at, you know, 123 Main Street -- I'm making that
4 up.

5 Q. So I think -- go ahead.

6 MR. DEAN: Let him finish his answer.

7 BY MR. ANWAR:

8 Q. I think the --

9 A. The answer -- so -- and the answer was
10 from an agency policy standpoint, no.

11 Q. No, none of the reports say that the
12 models were intended or should be used to determine
13 exposure to contaminated water in specific
14 individuals, correct?

15 MR. DEAN: Object to the form of the
16 question. Can we go off the record and have you
17 step out of the room, please, sir.

18 THE WITNESS: Sure.

19 MR. DEAN: Thank you.

20 THE VIDEOGRAPHER: Okay. Going off
21 record. The time is 12:14 p.m.

22 (Off the record.)

23 THE VIDEOGRAPHER: We're going back on
24 record. The time is 12:16 p.m.

25 BY MR. ANWAR:

1 Q. We are back on the record, Mr. Maslia.
2 In order to expedite things a little bit, I'm going
3 to ask you this question. It's going to be similar
4 to at least the prior question, but it is a
5 different question, for the record.

6 In any of the ATSDR modeling reports
7 for Tarawa Terrace, Hadnot Point or Holcomb
8 Boulevard, any of the expert panel summaries that
9 you put together, any of the transcripts from the
10 expert panels, 2005 and 2009, can you point me to a
11 single statement from any of those experts at the
12 time or in any of your reports, the numerous
13 voluminous reports, stating that the results of the
14 models are sufficiently reliable and accurate to be
15 used for exposure determinations in specific
16 individuals?

17 MR. DEAN: Object to the form of the
18 question.

19 THE WITNESS: We express in numerous
20 places that they are reliable, acceptable. Again,
21 we were not asked or -- nor were we ever asked to
22 apply them to individuals.

23 BY MR. ANWAR:

24 Q. Okay. Let's -- I'm going to show you
25 another exhibit.

1 (DFT. EXHIBIT 11, Appendix 15
2 Bates-stamped CLJA_Healtheffects-0000061127 through
3 0000061136, was marked for identification.)

4 THE WITNESS: Okay.

5 BY MR. ANWAR:

6 Q. I'm going to represent to you -- do you
7 recognize this document -- I've handed you what
8 I've marked as Exhibit 11 -- Mr. Maslia?

9 A. It says Appendix I-5. Let me just find
10 -- well, that's not it. Chapter I. Oh, okay.
11 Okay. Yes, that's the sensitivity -- that's the
12 Tarawa Terrace Chapter I report.

13 Q. Okay. This is an appendix to the
14 Tarawa Terrace Chapter I report, correct?

15 A. Yes.

16 Q. Okay. And there at the -- the second
17 paragraph in the appendix is a disclaimer, right?

18 A. I don't recall putting that there, but
19 -- can I look at my full chapter on it?

20 Q. Sure.

21 A. It's not on my Chapter I.

22 Q. Yeah. And that's one of my questions
23 to you. It's on ATSDR's website currently and it's
24 been produced in the litigation. It is attached as
25 part of a table to Chapter I, but not directly

1 included in the reports. And on the table we
2 discussed earlier, you're the primary author of
3 Chapter I, correct?

4 A. Yes.

5 Q. Okay.

6 MR. DEAN: Let me object to the form of
7 the question because I think the witness just said
8 it was not attached to his -- or you may have said,
9 I misunderstood, that this document Appendix I-15
10 is not a part of the report that was released, but
11 is now on the website; is that what you said?

12 MR. ANWAR: It's available on the
13 website.

14 THE WITNESS: I don't know anything
15 about that. When I left ATSDR, the only things on
16 the website were the published reports in 2017. So
17 no, I have never seen that disclaimer.

18 BY MR. ANWAR:

19 Q. Right. Let's -- let's read through the
20 disclaimer together.

21 A. Okay.

22 Q. It starts "the water modeling analysis
23 results presented herein are provided as a service
24 to the public for informational purposes. All
25 analyses and computer simulation results have been

1 reviewed for accuracy and completeness based on
2 available information and current modeling
3 assumptions."

4 A. It says "all data, analyses, and
5 computer-simulations."

6 Q. Okay. "All data, analyses and
7 computer-simulation results have been reviewed for
8 accuracy and completeness based on available
9 information and current modeling assumptions." Did
10 I read that correctly?

11 A. Yes.

12 Q. Then it goes on to say "the results,
13 however, may not reflect the actual exposure of
14 specific individuals to contaminants in the water
15 system." Did I read that correctly?

16 A. Yes.

17 Q. "In addition, more updated information,
18 if and when obtained, may change interpretations
19 presented herein. For details pertaining to
20 assumptions and limitations, the public should
21 refer to the aforementioned reference list above."
22 Did I read all of that correctly?

23 A. Yes.

24 Q. I most wanted -- most importantly I
25 wanted to focus on -- it states, "the results,

1 however, may not reflect the actual exposure of
2 specific individuals to contaminants in the water
3 system." Did I read that correctly?

4 MR. DEAN: Well, you can answer that.
5 I don't have an objection to that question.

6 THE WITNESS: Okay. Yes, you read that
7 correctly.

8 BY MR. ANWAR:

9 Q. And is it your testimony that you've
10 never seen this before?

11 A. No, it is my testimony I have never
12 seen this before.

13 Q. Were you involved in any way in
14 drafting it?

15 A. Not that I recall.

16 MR. DEAN: Object to the form of the
17 question. He just told you he didn't know anything
18 about it.

19 THE WITNESS: I don't know when it went
20 on the website. The last time I checked, which was
21 not recently, maybe two years ago or whatever, I
22 don't recall seeing it.

23 BY MR. ANWAR:

24 Q. Do you know why this disclaimer is
25 included as part of an appendix in Chapter I and

1 not in Chapter A?

2 MR. DEAN: Object to the form of the
3 question. Asked and answered.

4 THE WITNESS: It's not in -- in the
5 published report, okay? It's -- so I don't know
6 why or who put the disclaimer there or when it went
7 on there. As I said, to my best knowledge, when I
8 left in -- or retired in December of 2017, the only
9 thing on the website were these complete reports.
10 And I would not -- I don't understand why they
11 would pull just this out and put it like that on
12 the website. That may -- again, somebody at ATSDR
13 must have made a decision, but I was not involved
14 in that, nor was this ever -- the reference
15 citation is correct, but the disclaimer I've never
16 seen.

17 BY MR. ANWAR:

18 Q. Okay.

19 MR. BELL: At a good stop -- good point
20 for a break or not?

21 MR. ANWAR: I have a little bit more
22 questioning and then we can take a lunch break.

23 MR. BELL: Yeah, the chef out there
24 won't ring the bell for the employees until we go
25 get our food because y'all are the guests of the

1 day. I'll leave it up to you.

2 MR. DEAN: Well, give him five more
3 minutes if that's okay.

4 MR. BELL: No problem.

5 (DFT. EXHIBIT 12, Analyses of
6 Groundwater Flow, Contaminant Fate and Transport,
7 and Distribution of Drinking Water at Tarawa
8 Terrace and Vicinity, U.S. Marine Corps Base Camp
9 Lejeune, North Carolina: Historical Reconstruction
10 and Present-Day Conditions Disclaimer Bates-stamped
11 CLJA_Watermodeling_01-0000938451, was marked for
12 identification.)

13 BY MR. ANWAR:

14 Q. Okay. I am handing you what I'm
15 marking as Exhibit 12.

16 A. Okay.

17 Q. Exhibit 12 is a redline of the
18 disclaimer that we just looked at.

19 A. Okay.

20 Q. Would you agree with that?

21 MR. DEAN: Object to the form of the
22 question.

23 THE WITNESS: It looks like a big
24 difference to me, redlined.

25 BY MR. ANWAR:

1 Q. It's been redlined, correct?

2 A. Well, I know. I'm -- it's...

3 Q. And so this is a redlined version
4 reflecting changes that were made to, I guess, the
5 original disclaimer -- well, let me -- let me reask
6 that question.

7 This is -- so the redlined language in
8 here is what made it into the final disclaimer that
9 we just looked at in Exhibit 11, correct?

10 MR. DEAN: Object to the form of the
11 question.

12 THE WITNESS: No, that's the wrong
13 sign. There's differences here. For example --
14 I'll just give a quick -- it says "the documents,
15 graphs, and water modeling analyses." It says the
16 water modeling analyses.

17 BY MR. ANWAR:

18 Q. I've got you. Okay.

19 A. Okay.

20 Q. Have you seen this before?

21 A. I don't recall seeing it.

22 Q. Okay. I will represent to you that the
23 meta analysis indicates that ATSDR is a custodian
24 and you're the author.

25 A. Okay.

1 Q. And it's dated May 23rd, 2007. Do you
2 recall this document?

3 MR. DEAN: I -- object to the form of
4 the question, not that we don't accept your
5 representation, and asked and answered.

6 THE WITNESS: This seems to me to be
7 two different documents because this, the one that
8 you handed me, Exhibit 11, okay, the appendix stuff
9 is from the Chapter I, not -- not the cover, not
10 the cover page. The reference is correct, but not
11 that. If you're saying -- and Chapter I probably
12 came out in 2009. I can take a look at the date.
13 February 2009. Okay.

14 BY MR. ANWAR:

15 Q. Do you remember --

16 A. The fact that it may have been in under
17 my ATSDR land or wherever you obtained it from, I
18 don't know how -- how these documents are obtained
19 by DOJ. It could have been sent as an e-mail
20 attachment or Office of Communication or even an
21 epidemiologist, Office of the Director, anybody
22 saying this is what we want to use, but, whatever,
23 I -- you know, honestly do not remember these
24 disclaimers.

25 Q. Okay. It is attached to an e-mail and

1 I will pull that e-mail during the break. We can
2 talk through that e-mail.

3 A. Okay.

4 Q. The one that you're -- you're included
5 on.

6 A. Thank you.

7 MR. ANWAR: Let's take a break for
8 lunch and --

9 MR. DEAN: 45?

10 MR. ANWAR: That's fine.

11 THE VIDEOGRAPHER: Okay. We're going
12 off record. The time is 12:29 p.m.

13 (A luncheon recess transpired.)

14 THE VIDEOGRAPHER: We're going back on
15 record. The time is 1:24 p.m.

16 BY MR. ANWAR:

17 Q. Good afternoon, Mr. Maslia. We are
18 back on the record from a lunch break. Are you
19 okay to continue?

20 A. Yes, I am.

21 Q. Okay. Did you speak with your -- with
22 the counsel about your testimony during the break?

23 A. No, I did not.

24 Q. Okay. Thank you. Before we went on
25 the lunch break, we were discussing what I had

1 marked as Exhibit 12, which is a redlined version
2 of Exhibit 11, Exhibit 11 being a disclaimer and
3 Exhibit 12 being the redline of that disclaimer.

4 A. Okay.

5 Q. I'm going to show you another document
6 that I'm marking as Exhibit 13.

7 (DFT. EXHIBIT 13, e-mail correspondence
8 Bates-stamped CLJA_ATSDR_BOVE-0000157167 through
9 0000157170, was marked for identification.)

10 BY MR. ANWAR:

11 Q. I will represent to you Exhibit 13 is
12 an e-mail exchange from 2007 with you and Deb Tress
13 from ATSDR and Frank Bove from ATSDR. And the
14 e-mail includes an attachment with -- which is a
15 redline of the disclaimer that we were discussing
16 before the break. Take -- take a minute to look at
17 it, but would you agree with that?

18 A. Agree that this is an e-mail about
19 this -- yes.

20 Q. Okay. And so if we start at the
21 beginning of the chain, it looks like you sent an
22 e-mail on May 23rd, 2007 to Deborah Tress and the
23 subject is disclaimer for website. And in it you
24 write, "Deborah, I need a disclaimer that will come
25 up when a person enters the Camp Lejeune water

1 modeling website. Here's my attempt. Can you
2 please review and provide correct legal verbiage?
3 Thanks, Morris." Did I read that correctly?

4 A. Yes, yes.

5 Q. What -- what water modeling website are
6 you referring to?

7 A. Thinking back to 2007, 15 years ago or
8 whatever, I'm looking at the date. It's May 23rd.
9 The -- neither the executive summary or the Chapter
10 A report had come out yet because they were
11 June 2007, is when they came out. And the only
12 thing I can think of is someone above me, my
13 supervisor or the division, were thinking that just
14 like with other ATSDR documents, they wanted to put
15 results on the website, but they wanted a
16 disclaimer, an agency policy-type -- type
17 disclaimer. That's the only thing I can, I mean,
18 recall this many years back, okay?

19 Q. Okay. And I think this came up in your
20 2010 deposition. I realize that's now 15 years
21 ago.

22 A. Okay.

23 Q. But at one point, did the ATSDR website
24 contain a page or have a page that allowed an
25 individual to go in and enter sort of when they

1 were at Camp Lejeune and it produced numbers from
2 the model?

3 A. Yes.

4 Q. Okay. Can you tell me about that?

5 A. Well, as part of our Tarawa Terrace
6 analyses -- at that time it was just Tarawa
7 Terrace. And, of course, ATSDR is focused on
8 providing information to the public on their
9 health, so we requested -- we were working with the
10 U.S. Geological Survey. They had some web
11 developer guys, so we requested an app that someone
12 who resided at Lejeune or someone who didn't reside
13 at Lejeune could put in dates, dates of service,
14 and get an estimate, a quantitative estimate of
15 exposure -- when I say exposures, concentrations of
16 PCE.

17 Q. Okay.

18 A. Okay. And so the web application did
19 go on the website. I'm trying to figure out how --
20 I think you showed me -- it was with this table,
21 because that was Chapter I. That was the last
22 chapter being -- I'm not saying we didn't have the
23 numbers, but anyway, and at some point after it
24 went on the website, I know I got a call and I'm
25 sure my supervisor or the agency got a call from

1 the Department of Navy that they were not pleased
2 with it at all.

3 Q. The website itself?

4 A. You have to pull it down, yes.

5 Q. Okay.

6 A. Pull the application down off your
7 website.

8 Q. What do you recall about the
9 conversation -- about the call with the Department
10 of the Navy?

11 A. Only that it gave quantitative
12 estimates of mean concentrations, and my point --
13 it's the team's point -- was that it's contained in
14 the report and it was just an easier way to present
15 if someone didn't want to read the entire report to
16 do it, and that's all I remember, is that there was
17 some conversations with the Department of Navy.
18 And then our web guys said there was something
19 about security or whatever and the web -- that
20 application never got put back on -- on the web.
21 So my assumption is the agency just wanted to go
22 with tabular values right out of the reports.

23 Q. Okay. We'll get back to the website.

24 A. Okay.

25 Q. I wanted to focus on the e-mail

1 exchange and the -- the redline disclaimer --

2 A. Okay.

3 Q. -- that was attached. So it's -- based
4 on this first -- the first thread on the chain, it
5 sounds like you attempted to draft the disclaimer
6 and you sent it to Deborah Tress, correct?

7 MR. DEAN: Object to the form of the
8 question. Mischaracterizes the document.

9 THE WITNESS: I don't know. If I
10 recall, I was probably asked to produce the table,
11 okay, here because someone wanted it up on the
12 website, okay? And then someone probably said,
13 well, we need to have a disclaimer, okay? I don't
14 know who. I don't know who, but -- and so I
15 attempted to draft a disclaimer not being an
16 attorney, okay --

17 Q. Okay.

18 A. -- or agency policy person.

19 Q. Okay. And so the next exchange is an
20 e-mail from Deb Tress responding to you saying, "so
21 does the website help them estimate their own
22 exposure to the contaminated water?" Did I read
23 that correctly?

24 A. Yes.

25 Q. And then you respond to that further up

1 in the chain. You say, "yes, but they cannot
2 modify our numbers. It just provides results of
3 modeling based on the dates they enter to a website
4 and they can also download a graph and table as a
5 PDF." Did I read that correctly?

6 A. Yes, that's what I just said about
7 getting the tables from the report, okay?

8 Q. And now going further up on the chain
9 to the first page of the exhibit, Deb Tress's
10 response to you on May 23, 2007 says, "how about
11 this? I'm not totally clear how this is being
12 presented, so please edit as needed. I'm not that"
13 -- it says considered, but I think I might be
14 concerned "with liability by ATSDR for the use of
15 the tool, so I took out that type of language."

16 A. Okay.

17 Q. "Thanks". Did I read that correctly?

18 A. Yes.

19 Q. Okay. And then you forward that on to
20 Frank Bove, correct?

21 A. That is correct.

22 Q. And that's the first e-mail on the
23 page, the top of the chain. It says, "Frank,
24 attached is a disclaimer that will appear on the
25 water modeling website. It's been edited by Deb

1 Tress. Let me know if you agree to it and then I
2 will send to our web gurus." Did I read that
3 correctly?

4 A. That is correct.

5 Q. Okay. So earlier you indicated you --
6 you at least couldn't recall having seen this
7 disclaimer before?

8 A. That is correct, yes.

9 Q. But based on this e-mail -- this is
10 your e-mail address and you would have received the
11 disclaimer, correct?

12 A. Yes, yes.

13 Q. Okay.

14 A. That's -- I mean, as I said, it was a
15 lot of things going on around May 2007 with the
16 prep for the subcommittee hearing and trying to get
17 reports approved by the Office of Science and the
18 Office of Director and stuff and...

19 MR. DEAN: So for the record, so we
20 just clarify that Bates stamp numbers ends in one
21 -- Bove 167 and goes through 170. I haven't gone
22 to look, but I presume the document attached is
23 what you're saying is the document that is attached
24 that -- that he sent to Frank Bove?

25 MR. ANWAR: The last document on this

1 chain --

2 MR. DEAN: 170.

3 MR. ANWAR: -- 170 is the attachment to
4 that e-mail thread.

5 MR. DEAN: Okay. Thank you.

6 BY MR. ANWAR:

7 Q. You didn't recall it earlier, but you
8 would have received it and you were involved in the
9 drafting process, correct?

10 A. It's got my e-mail address on it and,
11 again, it looks like Office of General Counsel,
12 Deborah Tress, edited it, okay?

13 Q. Okay.

14 A. And probably -- and sent it back to me
15 and then I -- I didn't accept or reject the
16 redline. It's blue on here, but that's fine. I
17 just sent it on, as you can see by the title of the
18 attachment, is disclaimer underscore MLMOGC
19 reviewed.

20 Q. Okay.

21 A. Okay. So that's -- I forwarded it on
22 to Dr. Bove.

23 Q. Okay. And Exhibit 11, which we
24 discussed before the break, was the Chapter I,
25 Appendix I-5 document. Do you recall that?

1 A. It's the table from Appendix I-5.

2 Q. Yes.

3 A. Again, the final version of the report
4 -- the numbers are the same, but the final version
5 of the complete report was not published until
6 February of 2009, so this must have been -- I
7 can -- I can only surmise that once this was
8 published in 2009, they went back and replaced the
9 original tables. Same numbers, but original
10 tables, okay? We had completed the Monte Carlo
11 simulation, but we had not had the Chapter I report
12 approved, okay? So it's, you know, I guess I'm
13 confused as to -- because the e-mail is dated 2007.

14 Q. Yeah.

15 A. The report is not -- typically we would
16 get a report approved and then if we wanted to pull
17 a table or a PDF or a figure or whatever from it,
18 we would do it that way. So it's the same table.
19 I've checked the numbers, or spot-checked the
20 numbers, and it's the same -- same table. So maybe
21 it was -- the report wasn't drafted when we went
22 ahead and put that, you know, forwarded that to
23 Dr. Bove.

24 Q. Do you have any idea why the disclaimer
25 didn't make it into Chapter I itself, the full

1 report?

2 A. No, that's -- that's a mystery to me.
3 I will say to give credit to ATSDR leadership and
4 management, they did believe in the peer review and
5 expert review panels that we put together, and
6 every report went through at least two peer
7 reviews, one internal and one external, and so I
8 think that's why none of the reports really -- with
9 the -- we'll get to Hadnot Point in a minute, but
10 none of the reports contained any disclaimers like
11 -- like you're showing here. So I don't know what
12 prompted the disclaimer, but...

13 Q. Well, I will -- I will represent to you
14 that -- and you're, obviously, welcome to go look
15 for it yourself. The Appendix I disclaimer is
16 still included on the website as part --

17 A. On the website.

18 Q. -- of the table -- as part of a table
19 document. In the disclaimer where it says "the
20 results, however, may not reflect the actual
21 exposure of specific individuals to contaminants in
22 the water system" --

23 A. Are you referring to the redline or
24 blue line -- I mean, blue line or redline?

25 Q. On Exhibit 11.

1 A. Okay. I'm sorry. Okay. Okay. Go
2 ahead.

3 Q. The final version that's on the website
4 now.

5 A. Okay.

6 Q. In the middle of the disclaimer, it
7 says, "the results, however, may not reflect the
8 actual exposure of specific individuals to
9 contaminants in the water system." Do you agree
10 with that statement?

11 MR. DEAN: Object to the form of the
12 question.

13 THE WITNESS: I would say it has to say
14 that because what we're presenting is a Monte Carlo
15 simulation result, so you've got the calibrated
16 value, the probability at 2.5 percent, the
17 probability at 50 percent, and the probability at
18 97.5 percent. So your exposure may be someplace in
19 the middle there in between those ranges. So from
20 that standpoint, that's a correct statement
21 because, you know, a person's individual exposure
22 could be within that range anywhere.

23 Q. Okay.

24 A. And can I just qualify something?

25 Q. Go ahead.

1 A. When I use the words from my standpoint
2 of exposure, I'm talking about the estimated value
3 of the contaminated drinking water. I'm not
4 referring to exposure like ingestion, inhalation,
5 thermal exposure, okay? I'm just -- so I'm using
6 the word exposure in that sense.

7 Q. You're using exposure in -- in the
8 sense of drinking water?

9 A. Drinking water. Drinking water. But
10 the definition of exposure -- exposure assessment
11 is you have to really look at which pathway or
12 multiple pathways, okay, someone may -- may have
13 been or may be exposed.

14 Q. Understood. Let's turn back to your
15 rebuttal report, which is Exhibit 6.

16 A. This is 5.

17 Q. I know, a lot of documents.

18 A. Four. I've got a copy here, if that's
19 okay.

20 MR. DEAN: Yeah.

21 THE WITNESS: The tabs are just
22 typographical edits. Not technical, typographical.

23 BY MR. ANWAR:

24 Q. That's your version of --

25 A. Yeah, that's my version of my response

1 report.

2 Q. Okay. Your rebuttal report?

3 A. Yes.

4 Q. Which is -- I've marked as Exhibit 6.

5 A. Yeah, it's here someplace.

6 Q. Do you have any, like, markings or
7 writing in that?

8 A. I only corrected -- due to the
9 Maslia-genetic OCD, you know, like, I referenced
10 date is incorrect, but nothing technical. No
11 technical changes or technical reinterpretations on
12 here.

13 Q. Okay. Just like a typo?

14 A. Yes, yes, yes.

15 Q. Okay. Let's -- let's turn to page 27.

16 A. Okay. Okay.

17 Q. Page 27, at the bottom of it, contains
18 a section in your rebuttal report, Section 4.3,
19 excuse me, volatilization of VOCs during water
20 treatment process, correct?

21 A. Yes.

22 Q. And this is a response to the opinions
23 of DOJ's expert Remy Hennet about VOC losses that
24 would have occurred during the water treatment and
25 distribution process at Tarawa Terrace and Hadnot

1 Point, correct?

2 A. It would have occurred only during the
3 water treatment process. It's not possible for it
4 to occur during the distribution because you're
5 dealing with closed pressurized pipes.

6 Q. Okay. You would agree during the water
7 treatment process, correct?

8 A. Well, that's -- yeah, that's -- yes.

9 Q. So I don't want to necessarily read
10 this line by line.

11 A. Okay.

12 Q. Unless you want to direct me to a
13 specific portion, but I'll start more generally.

14 A. Okay.

15 Q. For much of this it appears that you
16 are restating Dr. David Sabatini's opinion on how
17 VOC losses are calculated and the extent of the VOC
18 losses that would have occurred; is that right?

19 A. That is correct.

20 Q. Okay. And do you defer to Mr. --
21 Dr. Sabatini on those opinions?

22 A. Yes, the calculations that he did, the
23 interpretations that he did, I defer to him.
24 That's his area of expertise.

25 Q. Okay. You're not doing any independent

1 calculations on VOC losses, correct?

2 A. No, I'm not.

3 Q. And you're not doing any independent
4 interpretation of those calculations of VOC losses,
5 correct?

6 A. I'm doing comparisons.

7 Q. You're comparing Dr. Hennet's opinion
8 with Dr. Sabatini's opinion, correct?

9 A. And -- and the Marine Corps'
10 consultant, AH Environmental.

11 Q. Okay.

12 A. And our experts who served on the
13 expert panels.

14 Q. Determining VOC losses or calculating
15 them, that's not your expertise, correct?

16 A. That is correct.

17 Q. Okay. So turning to page 30 in your
18 report.

19 A. Okay.

20 Q. Actually, it might be 29. Sorry about
21 that.

22 A. Okay.

23 Q. Okay. I misspoke again. I'm sorry.
24 It's page 31.

25 A. 31?

1 Q. Yeah.

2 A. Okay. I'm there.

3 Q. Okay. So in the -- in the second
4 paragraph there, the first large paragraph, you go
5 on to discuss -- it says, "additionally, in
6 contrast to Remy Hennet's contention that ATSDR
7 ignored or did not account for VOC losses during
8 storage treatment and distribution"...

9 A. I'm there. I'm following.

10 Q. "This issue, including the results of
11 the AH Environmental Consultants report, was
12 discussed in detail with the expert panels convened
13 by ATSDR in 2005 and 2009." Did I read that
14 correctly?

15 A. Yes, yes, you did.

16 Q. Okay. And a little further down it
17 says, "excerpts from the verbatim transcript are
18 provided in Appendix A", and you're talking about
19 the expert panel. "The consensus was there was
20 negligible volatilization, at most 10 percent, from
21 the spiractors." And -- so -- and then you quote,
22 "so although we said it's probably negligible and I
23 agree with Tom's number here, at 90 percent what's
24 going in is coming out on the other end." Did I
25 read that correctly?

1 A. Yes, and then it references Appendix A
2 at the end of the sentence.

3 Q. Correct.

4 A. Okay. To be clear, that's not my
5 quotation.

6 Q. Correct. That's from the expert panel,
7 correct?

8 A. Yes.

9 Q. And that's Dr. Pommerenk?

10 A. Yes.

11 Q. Okay. And the last sentence there is,
12 "in light of the conclusions of AH Environmental
13 Consultants, 2004, and the recommendations of its
14 expert panels, ATSDR made the decision to consider
15 any potential VOC losses from storage, treatment
16 and distribution as negligible." Did I read that
17 correctly?

18 A. Yes.

19 Q. And I believe you reference in it in
20 your report, but I'll pull out the actual document
21 as well.

22 A. In which report? The expert report?

23 Q. It's in your expert report, but let me
24 -- I'm going to pull out the -- the AHE report for
25 you. Hang on a second.

1 (DFT. EXHIBIT 14, ATSDR Support
2 Estimation of VOC Removal report from AH
3 Environmental Consultants Inc., Bates-stamped
4 CLJA_Watermodeling_010000071446 through 0000071512,
5 was marked for identification.)

6 BY MR. ANWAR:

7 Q. I'm handing you what I'm marking as
8 Exhibit 14. Exhibit 14 is the 2004 environmental
9 -- or AH Environmental Consultants report, correct?

10 A. That is correct.

11 Q. It's the one that you reference in your
12 rebuttal report, correct?

13 A. Yes.

14 Q. If you turn to page 4-4.

15 A. Which page? Oh, report page four?

16 Q. Report page 4-4. Thank you.

17 A. Okay.

18 Q. At the top of the page there it states,
19 "based on these observations, there is some
20 uncertainty in removal estimates from the effluent
21 pipes. Additional uncertainties are introduced by
22 varying head losses in the pipes caused by calcium
23 carbonate scale built-up and manual clearing --
24 cleaning. However, it is estimated that PCE and
25 TCE removals due to aeration at the spiractor

1 effluent pipes are likely to be no larger than
2 15 percent." Did I -- Did I read that correctly?

3 A. Yes, yes.

4 Q. So AHE's report determined up to or no
5 larger than 15 percent, correct?

6 MR. DEAN: Object to the form of the
7 question.

8 BY MR. ANWAR:

9 Q. And let me -- let me repeat the
10 question. This AHE report determined that PCE and
11 TCE losses or VOC loss due to aeration at the
12 spiractor effluent pipes are likely to be no larger
13 than -- no, to be -- than 15 percent?

14 A. That's what it states.

15 Q. Okay.

16 A. That's what the report states.

17 Q. And looking back at page 31 of your
18 rebuttal report, that last -- that paragraph we
19 were just looking at, the last sentence is, "so in
20 light of the conclusions of the AHE consultants,
21 2004, and the recommendations of the expert panels,
22 ATSDR made the decision to consider any potential
23 VOC losses from storage, treatment, and
24 distribution as negligible." Did I read that
25 correctly?

1 A. Yes.

2 Q. Whether it's 10 percent VOC losses or
3 up to 15 percent VOC losses, is it your opinion
4 that 10 or 15 percent is negligible -- a negligible
5 percent of losses?

6 A. Yes, compared with the differences, for
7 example, in water sampling or the quality sampling,
8 the uncertainties associated with well scheduling
9 operations. And you've got to look at, you know,
10 everything, not just isolate on -- on the water
11 treatment plant, but considering everything 10
12 percent -- percent, we assumed and we were, I
13 believe, justified in assuming it was negligible,
14 okay? That is an -- the approach we took was a
15 pragmatic engineering approximation through a
16 modeling issue.

17 Q. For purposes of determining exposure in
18 an individual, is a 10 or 15 percent VOC loss --
19 would you consider that to be negligible?

20 A. You would have to speak with the
21 epidemiologist or toxicologist, okay? I couldn't
22 say on an individual level, okay?

23 (DFT. EXHIBIT 15, Analyses of
24 Groundwater Flow, Contaminant Fate and Transport,
25 and Distribution of Drinking Water at Tarawa

1 Terrace and Vicinity, U.S. Marine Corps Base Camp
2 Lejeune, North Carolina: Historical Reconstruction
3 and Present-Day Conditions Response to the
4 Department of the Navy's Letter on: Assessment of
5 ATSDR Water Modeling for Tarawa Terrace,
6 Bates-stamped CLJA_Watermodeling_01_09_0000033263
7 through 0000033326, was marked for identification.)

8 BY MR. ANWAR:

9 Q. I'm handing you what I'm marking as
10 Exhibit 15.

11 A. Okay. Response. Okay.

12 Q. And I wanted to direct your attention
13 to page six, I believe, of the report.

14 A. Okay. The pages, I don't believe, are
15 numbered.

16 Q. I think they're on the top left. Well,
17 and let me --

18 A. Can you give me a Bates number because
19 this doesn't have a report page number.

20 Q. Before I begin, let me -- let me start
21 by asking you a few questions.

22 A. Sure.

23 Q. This is the ATSDR response to the
24 Department of Navy's letter or their critiques on
25 the Tarawa Terrace modeling, correct?

1 A. That's -- yes, this is --

2 Q. And it's entitled, on the first page
3 there, response to the Department of Navy -- to the
4 Department of the Navy's letter on quote -- colon,
5 assessment of ATSDR water modeling for Tarawa
6 Terrace, correct?

7 A. That's correct.

8 Q. Okay. Did you write this response?

9 A. Again, other reports, I wrote parts of
10 it and I coordinated other people's response. I
11 may have asked them for input and if they could
12 respond to a certain section or not, but I
13 coordinated the overall report.

14 Q. Okay. So in coordinating it, similar
15 to the other reports that you oversaw and
16 coordinated, would you have reviewed and had an
17 opportunity to review the -- to comment on the
18 report?

19 A. Yes.

20 Q. And ultimately, what was decided, would
21 you have had an opportunity to sign off on the
22 report?

23 A. It would have come from me in going up
24 through the clearance process, report clearance
25 process of the agency, okay? And so I would have

1 been the one that put it into the clearance process
2 at the first stage once I was satisfied with the
3 report.

4 Q. So you would have -- you would have
5 approved it and then pushed it up the chain,
6 correct?

7 A. Yes.

8 Q. Okay.

9 A. Well, technically a report is only
10 approved by either the Office of the Director or
11 the Office of Science at CDC, okay? An author
12 cannot approve an agency report. They can submit
13 it, they can comment on it and all of that, but
14 it's only those two, Office of Director and Office
15 of Science at CDC, when I was there.

16 Q. And perhaps "approve" is a bad term
17 because it may be a term of art --

18 A. Right.

19 Q. -- within an agency, but you would have
20 had an opportunity to review, comment and sign up
21 -- sign off on it and then send it up the chain to
22 be approved, correct?

23 A. Yes, that is correct.

24 Q. Okay. So on the page with the Bates
25 ending in 33272, if you could turn there.

1 A. Yeah, yeah. 272?

2 Q. Correct.

3 A. Okay. I'm there, 33272.

4 Q. Okay. And then the page before, 33271,
5 it's a Department of Navy comment statement 7.1 and
6 it's an excerpt from their letter. It says,
7 "however, all comparisons did not fall within the
8 calibration range. At the water treatment plant,
9 12 percent of the simulated PCE concentrations
10 failed the calibration standard at the water supply
11 wells, a majority, 53 percent, of the simulated
12 concentrations fell outside the calibration
13 standard."

14 A. Correct.

15 Q. Did I read that correctly?

16 A. Yes.

17 Q. Okay. And so then ATSDR responds. And
18 if you turn the page, as part of the response on
19 the last page there it states, "to address the
20 issue of the intended use of the water modeling
21 results by the current ATSDR epidemiological study,
22 the DON, Department of Navy, should be advised that
23 a successful epidemiological study places little
24 emphasis on the actual or absolute estimate of
25 concentration and, rather, emphasizes the relative

1 level of exposure. That is, exposed individuals
2 are, in effect, ranked by exposure level and
3 maintain their rank order of exposure level
4 regardless of how far off the estimated
5 concentration is to the, quote, true measured PCE
6 concentration." Did I read that correctly?

7 A. Yes.

8 Q. Were you involved in -- did you -- did
9 you write that section?

10 A. No, I did not.

11 Q. Okay. But you reviewed it and you
12 signed off on the response before you sent it off
13 to the appropriate --

14 A. I did not. It seems to me, looking at
15 the language or the verbiage in that last
16 paragraph, that that was written by an
17 epidemiologist, and what I would have done as we
18 were preparing this report -- as I said, we had a
19 team. I may have forwarded it to the
20 epidemiologists of the study and asked them
21 specifically would they review it and care to add
22 anything to it.

23 Q. But you oversaw the response and you
24 reviewed it?

25 A. Yes.

1 Q. And you signed off and sent it up the
2 chain to be approved, correct?

3 A. That is -- that is correct.

4 Q. Okay. And so as I understand it, as
5 I'm reading this, it's -- and this is coming as
6 part of a response to a concern, so maybe you wrote
7 about -- raised about the accuracy of the model
8 based on the calibration. As far as -- it sounds
9 like for purposes of the epidemiological study that
10 was being conducted in which the modeling was
11 supporting, the absolute concentration values
12 produced by the model didn't matter; would you
13 agree with that?

14 MR. DEAN: Object to the form.

15 THE WITNESS: Well, it doesn't say
16 didn't matter. It says little emphasis is placed
17 on it.

18 BY MR. ANWAR:

19 Q. Okay.

20 A. And again, it's from -- I would
21 interpret this, because I know I did not write this
22 section, that that's -- you really need to ask an
23 epidemiologist on the epidemiological
24 interpretation of that.

25 Q. What it says is that that is

1 successful -- that the -- the intended use of the
2 water modeling results by the current
3 epidemiological study places little emphasis on the
4 actual absolute estimate of concentration and
5 rather emphasizes the relative level of exposure,
6 right?

7 A. That's what it says.

8 Q. All right. And then it says, "that is,
9 exposed individuals, in effect -- are, in effect,
10 ranked by exposure level and maintain their rank
11 order of exposure level regardless of how far off
12 the estimated concentration is to the true measured
13 PCE concentration", correct?

14 A. That's what that -- that sentence that
15 you just read says.

16 Q. Okay. So if in that context for the --
17 of the water modeling and what was happening at the
18 time, when you-all were -- so let's turn back to
19 the discussion in your rebuttal report about the
20 VOC losses --

21 A. Okay.

22 Q. -- and ATSDR's characterization of 10
23 or 15 percent of VOC losses as negligible. If
24 ATSDR was performing an epidemiological study that
25 was ranking exposure level and maintaining the rank

1 order of individuals, does it matter -- it doesn't
2 matter whether the VOC losses are 10 percent,
3 15 percent, 25 percent, does it?

4 A. It's an epidemiology question or
5 toxicology or a combination of both, okay? Again,
6 in the response, again, I can tell that's not the
7 way I write. It was written by an epidemiologist
8 in there and I just -- I'm not comfortable
9 answering an interpretation from one or the other,
10 okay?

11 Q. The point I'm getting at is that
12 whatever the concentration level, you know, we're
13 talking about is produced by the model, let's say
14 100, across the board for individuals, the same
15 amount is coming off the top for the VOC losses, so
16 10 percent, 15 percent, it doesn't change the rank
17 of the order -- the rank of individuals for
18 purposes of the epi study, right?

19 MR. DEAN: Object to the form of the
20 question.

21 THE WITNESS: Again, that's an
22 epidemiological analysis. I've never done one of
23 those. I've never ranked, okay, so I don't know
24 what assumptions they are using to put into there.
25 I know they are using the mean monthly

1 concentrations that we reconstructed, but that's as
2 far as I can go.

3 BY MR. ANWAR:

4 Q. ATSDR made the decision -- treated VOC
5 losses as negligible because the water modeling was
6 supporting an epi study, right?

7 A. No.

8 MR. DEAN: Object to the form of the
9 question.

10 THE WITNESS: One has nothing to do
11 with the other. I think we're comparing apples and
12 oranges here. The VOC potential volatilization was
13 geared towards our water modeling and taking the
14 results of the simple mixing model and then putting
15 it through the water treatment process. We did not
16 model the water treatment process and, you know,
17 distributing the -- the water to wherever,
18 locations within Camp -- Camp Lejeune.

19 If -- back up. Based on -- again, I'm
20 referring to the AH report, our experts. We had
21 one of our distribution system experts, and it was
22 our conclusion that 10 percent, 15 percent, was
23 well within engineering applications. That is
24 typically done in -- in engineering applications.
25 You go from theory -- from contaminant fate and

1 transport equation, groundwater flow, and then you
2 have to make some assumptions, okay, some
3 simplifying assumptions or pragmatic --

4 SIRI: I'm sorry. I didn't quite catch
5 that. Can you please say that again?

6 BY MR. ANWAR:

7 Q. Siri wants you to repeat it.

8 A. Okay. I didn't know someone was
9 listening, but -- and so that -- that's what our
10 focus is. Our focus was never on how the
11 epidemiology were going to interpret or use the
12 results other than that the most likely estimates
13 were mean monthly concentrations.

14 Q. When you're building a model and you're
15 -- you're starting with the conceptual model, isn't
16 part of the -- developing the conceptual model
17 understanding what the purpose and the model will
18 be used for?

19 A. No, the purpose is to get -- in terms
20 of, if we can get specific, a groundwater flow
21 model, for example, your conceptual model would be
22 how does water move through the different aquifers
23 or different layers. And contaminant transport, if
24 there's a contaminant source or sources, how do
25 those contaminants then mix or move with

1 groundwater, and then how are they mixed with the
2 different wells that may or may not intercept
3 contaminated water, and then how they're
4 distributed, okay?

5 And so your groundwater flow has
6 specific equations with some parameters that you
7 have to make assumptions on. The contaminant fate
8 and transport has equations that we have to make
9 some engineering approximations or simplifications,
10 and the treatment process we -- we said after
11 looking also at the data, the data, the sampling
12 data that was provided by whoever did the lab
13 analyses that came -- provided to us by our points
14 of contact at Camp Lejeune, but somebody did the
15 analyses, that there was very little negligible
16 indication of any kind of VOC loss from the
17 untreated, where all the raw water went in, to the
18 treated. And that's -- I put that in -- is this
19 the rebuttal report? I put that in the rebuttal
20 report. We had some sampling data that showed
21 that.

22 Q. I guess one of the things I -- and this
23 is just me, like, leveling --

24 A. Right.

25 Q. -- and not, you know, taking off the

1 lawyer hat. One of the things I sort of struggle
2 with is this idea that when the modeling was being
3 performed, that the purpose for which the model was
4 being used is somehow divorced from the decisions
5 that were made with respect to building the actual
6 model. And I'm saying candidly, like, reading the
7 e-mails, the documents --

8 A. Right.

9 Q. -- it's all over the paperwork and the
10 documents at the time that the modeling was built
11 to support the epi study. And I think -- it sounds
12 like, to me, you're saying that when you're
13 building the model, you just had no idea what they
14 were doing with the -- the model results.

15 MR. DEAN: Object to the form of the
16 question. You can answer.

17 THE WITNESS: As I said before, if you
18 look at the start of the project, the start, they
19 asked us -- they saw what we did with Toms River,
20 New Jersey and came to us and said, well, can you
21 do the same thing with Camp Lejeune, meaning
22 monthly concentrations or monthly -- yeah, monthly
23 water concentrations. And so that's where we
24 started and there were, again, the five objectives
25 that I've stated previously, and that's how we

1 designed the model, is to be able to reconstruct
2 concentrations to meet those five objectives and
3 to, you know, express some reliability, uncertainty
4 associated with them.

5 How the epidemiology side or toxicology
6 side of -- of the agency would then take those and
7 what analyses they would do, as I said, we were
8 blinded to that, okay? I could never tell you --
9 to this day, I do not know who was classified as a
10 case, who was a controlled, where they lived, what
11 -- how they served, when they served or anything
12 like that. Because in developing these -- the
13 models for historical reconstruction, they should
14 be, as I termed it, robust, meaning anyone, not
15 just the epidemiologists, anyone should be able to
16 take the results of your model and apply them as
17 they see fit given the uncertainties, the
18 limitations of modeling.

19 BY MR. ANWAR:

20 Q. Frank Bove was the epidemiologist
21 performing the studies, correct?

22 A. He was the senior epidemiologist.
23 There was also -- now it's Dr. Perri Ruckart.

24 Q. Okay.

25 A. Those are the two people I interacted

1 with.

2 Q. Dr. Bove and Dr. Ruckart, correct?

3 A. Yes.

4 Q. And if you were developing the model,
5 you were certainly communicating with Dr. Bove,
6 correct?

7 A. There were e-mails, but not -- he was
8 not questioning us and what assumptions we were
9 making. They would more communicate with us on two
10 aspects. One, there's a CAP meeting and we need an
11 update on the modeling and, two, when are we going
12 to have some final results that we can use for the
13 epi study, okay?

14 Q. Okay. You were communicating with
15 Dr. Bove when building the model, though, correct?

16 MR. DEAN: Object to the form of the
17 question.

18 THE WITNESS: When you say building,
19 are you talking about calibrating the model or
20 doing the conceptual groundwater flow model and
21 what type of code we were going to use?

22 BY MR. ANWAR:

23 Q. Any aspect of developing either of the
24 Tarawa Terrace model or the Hadnot Point/Holcomb
25 Boulevard model. During the course of it, you were

1 discussing what Dr. Bove's needs were, correct?

2 MR. DEAN: Object to the form of the
3 question. Mischaracterizes his prior testimony.

4 THE WITNESS: We communicated about
5 what results they would need, the epidemiologists
6 would need, and could we provide them. They
7 indicated that they would need, at one point,
8 trimester information. So if we could give them
9 monthly, that would -- they would be comfortable
10 with -- with monthly values.

11 BY MR. ANWAR:

12 Q. Was Dr. Bove permitted the opportunity
13 to weigh in on modeling decisions? So, for
14 instance, parameter inputs that you decided on and
15 assumptions that were made?

16 A. I may have copied him if I sent out a
17 group e-mail, if we were discussing modeling
18 things, but he would not come back and say, no, you
19 should use, you know, 100 or 30 or whatever
20 parameter. We never had those kinds of
21 discussions. He left that strictly to the water
22 modeling team.

23 Q. So turning back to your rebuttal
24 report.

25 A. Okay.

1 Q. I think it's page 31.

2 A. Okay.

3 Q. There -- actually, I may have told you
4 the wrong page again. Give me one second. Okay.
5 It's page 30, actually. I'm sorry.

6 A. Okay.

7 Q. At the top of that page it starts, "in
8 addition, Remy Hennet's assertion that" --

9 A. Wait. Page 30.

10 Q. 30 of your rebuttal.

11 A. This says rebuttal.

12 Q. It's the first full sentence.

13 A. Oh, okay. I see it. Okay.

14 Q. It states, "in addition Remy Hennet's
15 assertion that ATSDR did not account for such VOC
16 losses is incorrect." And then it goes on, "first
17 ATSDR analyzed sampling data of water from both
18 pretreatment and posttreatment." And then you list
19 in a table sampling data for the Hadnot Point water
20 treatment system?

21 A. Correct.

22 Q. And the rest of that is a discussion
23 about the sampling data from the Hadnot Point water
24 treatment system. I don't see anywhere in that
25 paragraph any discussion about Tarawa Terrace. And

1 it's true that the Tarawa Terrace model didn't
2 account for VOC losses at all, right?

3 A. No, we said they were negligible at
4 each treatment facility. It's just that at Hadnot
5 Point we actually had sampling data, okay? A pair
6 and a triplet, okay? And, for example, for
7 July 27th, 1982 for TCE, we have -- the untreated
8 water is 19 micrograms per liter and that same day
9 -- I can't say what time it was taken at, but we've
10 got treated water at 21 micrograms per liter,
11 allowing for measurement error. It appears to me
12 that there is no VOC loss and that is in sampling
13 data that -- and so, again, you can calculate using
14 equations, but the sampling data showed no VOC
15 loss.

16 Again, on here there is -- at the top
17 of page 31 it says "at the Tarawa Terrace water
18 treatment plant there's triplet measured data taken
19 on July 28th, 1982." And in this -- in this one
20 it's classified as finished, untreated, and treated
21 water. So 104 micrograms per liter finished water,
22 76 untreated, and 82 treated water, okay?

23 Q. Those --

24 A. Now, again, you have variations like
25 this in water -- water samples, but it does not

1 seem to me that there are any VOC losses.

2 Q. So we'll turn to the sampling data as
3 it relates to Hadnot Point --

4 A. Okay.

5 Q. -- because that discussion is all about
6 Hadnot Point, correct?

7 A. No, no, I just said this is Tarawa
8 Terrace. I just -- the triplet is data from Tarawa
9 Terrace. The TTWTP is our acronym for that.

10 Q. What page are you looking?

11 A. Page 31 at the top.

12 Q. Now, when you were comparing the
13 sampling data to determine no VOC losses, so for
14 both Hadnot Point and Holcomb Boulevard, did you
15 take into account whether or not the -- the wells,
16 the contaminated wells, for those two treatment
17 systems had been pumping?

18 A. We do not have information on sampling
19 data, I believe, on any of the sampling data,
20 whether the wells were pumping or not -- not
21 pumping. We may be able to make some judgments
22 based on before and after if it's at the same --
23 same -- same well, whether the well was pumping or
24 not, but we had no information on the pumping
25 status of the well, but that would not have -- you

1 would not have lost any VOCs in the well because
2 it's not that you have air space in there. The
3 well is screened down through the aquifer, okay?
4 It's completely filled with water.

5 Q. Well, you're -- you're basing the
6 conclusion at the top of page 31 as it relates to
7 Tarawa Terrace, and I think for Hadnot Point as
8 well, you're comparing finished water samples
9 versus untreated water samples, and you're reaching
10 the conclusion, it seems to me, that in comparing
11 those, just the -- the sampling results, there were
12 no VOC losses, right?

13 A. Well, the data indicate that and then
14 taking that in addition to what our expert panel
15 said, maybe 10 percent or so, that leans you
16 towards the minimum for the negligible losses
17 because I would expect if there were VOC losses,
18 and let's say 10 percent, I would expect to see
19 that in the sampling data to be reduced for the
20 sampling data from the untreated water, which is
21 probably the raw water tank where all the wells mix
22 in together, go through the treatment process, and
23 then they put it into a treated water tank either
24 elevated or underground. I would have expected to
25 see some losses.

1 Furthermore, I might add, in the period
2 January 28th through February 8th, 1984, there was
3 an eight-day period when they had to shut down the
4 Holcomb Boulevard water treatment plant. Holcomb
5 Boulevard was never served with -- did not -- the
6 treatment plant was -- never had contaminated
7 water, but when they shut down during that
8 eight-day period, the distribution system going
9 into Holcomb Boulevard received contaminated Hadnot
10 Point water. And if you just look at some of the
11 values, and I put the ranges in there. I believe
12 there's a CLW document that lists them all the way
13 from 24.1 to over 1100. So again, I'm going to ask
14 again, where are the losses?

15 Q. So for instance, for Tarawa Terrace,
16 the -- the source or the primary contaminated well
17 was TT26, right?

18 A. That -- that was the main well, yes.

19 Q. And there's statements in the reports,
20 and we'll look at them, that -- but would you agree
21 that when TT26 was pumping, the -- the contaminant
22 concentration levels were higher?

23 A. Yes.

24 Q. And when TT26 was not pumping, the
25 contaminant concentration levels decreased, and I

1 think you stated in your expert panel that -- in
2 one of the expert panels that the concentration
3 levels went down to almost zero?

4 A. Well, that's shown in our Chapter A
5 report, too. When they shut the well down for
6 maintenance, okay, so it was not pumping, the
7 concentrations at the water treatment plant went
8 down to near -- near zero, and that also is what
9 proved to us that TT26 was the driving force or the
10 driving well in that whole -- whole system.

11 Q. So the only point I'm trying to make
12 with respect to comparing finished samples from
13 finished water versus untreated water at Tarawa
14 Terrace and at Hadnot Point, I mean, simply --
15 context matters. Simply comparing samples from
16 untreated water and finished water doesn't tell you
17 whether the well was pumping, whether the
18 contaminants were increasing, whether the well --
19 whether the well had stopped pumping and the
20 contaminants were decreasing, you can't make a
21 determination on VOC losses solely by comparing a
22 finished water sample and an untreated water
23 sample?

24 MR. DEAN: Object to the form of the
25 question. Compound. Complex.

1 BY MR. ANWAR:

2 Q. You can answer.

3 A. Okay. I think you are confusing -- and
4 I don't mean that as a personal attack.

5 Q. Sure. No offense taken.

6 A. Confusing different mechanisms and
7 different aspects of the entire process of
8 delivering, obtaining water from the aquifer to the
9 delivery point, okay? The samples -- there's some
10 samples at TT26, okay, that's at the well, and that
11 -- that says nothing about -- and honestly, that
12 says nothing about the treatment process. The
13 treatment process occurs after all the wells mix in
14 in the entry to the water treatment plant, okay?

15 So if I take a sample, and let's say
16 untreated water, which will be the raw water tank,
17 okay, and I get a -- a value, a concentration, and
18 then I take a similar sample and I'm assuming they
19 are using the same testing methodology at the
20 treated end, which would be on the other side of
21 the spiractors, the other side, and I don't see
22 any -- any losses, any changes, decreases in
23 concentration, excuse me, can I -- then what I am
24 saying is it's a good assumption, a good
25 engineering assumption, that even -- whatever

1 losses there are are so negligible that we're not
2 able to measure them. Or the people that measured
3 them, the same -- the ATSDR did not actually
4 measure those -- those samples, okay? And that's,
5 again -- and everything that we do in modeling and
6 interpretations and all of that, it's sort of a
7 weight of evidence approach.

8 Q. Sure.

9 A. Okay? So we've got the AH report.
10 We've got our expert panel. We've got -- these
11 members actually did water distribution system
12 testing at various -- not at Camp Lejeune, but at
13 various locations, and we've got sampling data. So
14 you've got to take it all -- all together, okay?

15 Q. I just have a few more questions on
16 this topic --

17 A. Sure.

18 Q. -- and then we'll take a break.

19 A. Okay.

20 Q. Now, using Tarawa Terrace again as the
21 example, TT26 was the main well that was
22 contaminated, correct?

23 A. That is -- that is correct. There was
24 some contamination at TT23, which is referred to as
25 the TT new well. It only ran for about nine months

1 maybe. When it was put in, it was put in to a
2 contaminated aquifer, okay, so that's why its
3 concentrations are high immediately. But again,
4 TT26 was the major contributor.

5 Q. TT26 and TT23 weren't the only wells
6 providing water in Tarawa Terrace, right?

7 A. That is correct.

8 Q. And the wells at Camp Lejeune,
9 including Tarawa Terrace, were cycled, right, in
10 terms of the usage?

11 A. They recycled, yes, yes.

12 Q. And so simply comparing a finished
13 water sample versus an untreated water sample
14 doesn't tell you anything about which well the
15 water was coming from, right?

16 A. Well, we knew that based --

17 MR. DEAN: Object to the form.

18 THE WITNESS: We knew that based on the
19 modeling, okay, the contaminant fate and transport
20 model. The output of the contaminant fate and
21 transport model were the concentrations at specific
22 wells, okay? And you have to look in the model
23 output and you can see which wells were turned on
24 or off during which month. And then we had, again,
25 a simple mixing model.

1 BY MR. ANWAR:

2 Q. And --

3 A. And the key is the simple mixing model
4 mixed all -- all the wells together, okay, for
5 conservation of mass and continuity. And so when
6 we get a monthly concentration out of the mixing
7 model, okay, that's what we said went into the
8 water treatment plant.

9 Q. In -- in comparing finished water
10 samples and untreated water samples for purposes of
11 your rebuttal report in offering opinions about VOC
12 losses --

13 A. Right.

14 Q. -- at Hadnot Point and Tarawa Terrace,
15 did you go back and look to see what time frame the
16 samples came from, whether the wells -- which wells
17 were turned on and off, what information was
18 available?

19 A. Let's see what this is. I looked at
20 the treatment process, okay, because that's -- that
21 was the focal point of those claiming there were
22 major VOC losses versus negligible. And so I
23 looked -- you have to look at the treatment
24 process, okay? The treatment process starts at the
25 mixing of all the wells into the raw water tank.

1 And the assumption, engineering assumption, is that
2 there's instantaneous mixing, and we prove that in
3 the Chapter I report because we run parallel
4 models. We run the full-blown EPANET model, which
5 is water distribution, and we run the mixing model.
6 And after a week or ten days, they are equivalent
7 to the -- out to the four decimal places. So that
8 means you have -- the mixing model in addition to
9 what our expert panel told us, all the wells were
10 mixing at the water treatment plant in the raw
11 water tank and there was instantaneous mixing
12 compared to our monthly concentration needs.

13 Q. Okay. I think my last question on
14 this, so just taking the Tarawa Terrace example
15 here in your report at the top of page 31 where
16 you're comparing the 104 microgram per liter
17 unfinished water versus the 76 microgram per liter
18 in untreated water and the 82 microgram per liter
19 in treated water --

20 A. Right.

21 Q. -- I don't see it anywhere in your
22 report, but -- and so I think you would agree that
23 you don't know what percentage of water in the
24 untreated, treated, and finished water samples at
25 Tarawa Terrace came from TT26, right?

1 MR. DEAN: Object to the form.

2 THE WITNESS: You -- you could -- you
3 could actually compute that because the process to
4 get the mixing model results would be is you take
5 the well's capacity for a given month, how much
6 it's pumping, what the concentration is -- let me
7 back up. Hold on. Get the chapter right. It's
8 easier for me to explain the Chapter A here. Here.
9 Okay. It's -- it's a model here. Okay. Page A40
10 in Chapter A, equations one and two. Concentration
11 of PCE in finished water, okay? So we have all of
12 the information. You see it's summing over however
13 many wells were pumping versus whether they are
14 contaminated or not. So, yes, we do know, but the
15 assumption was -- in agreement with what our expert
16 panel recommended -- is that you could assume
17 instantaneous was a CSTR, continuously stirred tank
18 reactor model, for the mixing model. And so the
19 minute the wells hit the raw water tank, they all
20 mixed. And to us instantly was anything less -- a
21 good portion less than a month. And that's shown
22 in the Chapter I report. I can tell you exactly
23 where in a minute.

24 Q. Why don't we go ahead and take a break
25 if you're --

1 A. Okay.

2 THE VIDEOGRAPHER: Okay. We're going
3 off. Record the time is 2:33 p.m.

4 (A recess transpired.)

5 THE VIDEOGRAPHER: Okay. We are going
6 back on record. The time is 2:43 p.m.

7 THE WITNESS: Is it possible to qualify
8 or continue with where we left off?

9 BY MR. ANWAR:

10 Q. Sure. Did you have something you
11 wanted to --

12 A. Yes.

13 Q. -- correct or --

14 A. I would like you to turn to the Hadnot
15 Point/Holcomb Boulevard Chapter A report.

16 Q. Sure. What page are you --

17 A. Page A38, Figure A15.

18 Q. A38, A15.

19 A. Yes.

20 Q. Okay.

21 A. Okay. This is the same mixing model
22 that we talked about at the Tarawa Terrace. You'll
23 notice the equations on page -- the next, page A1
24 and A2 are the same equations one and two in Tarawa
25 Terrace report in Chapter A.

1 Q. Okay.

2 A. What I want to point out to is -- and
3 this is a conceptual or a schematic. If you look
4 at the distribution network of pipes on the
5 left-hand part of the Figure A -- mixing model
6 approach is the title of that section.

7 Q. Okay.

8 A. You'll see that there are little --
9 towards the right there's HPWTP, that tank
10 represents HP, and you've got contaminated, meaning
11 red, or uncontaminated, blue, symbols there mixing
12 into the -- into the HPWTP. Now, we did not do
13 step-by-step treatment process. What the
14 assumption is, and a correct assumption, an
15 approximation, is that they all instantaneously
16 mixed in the raw water tank. Once they mixed in
17 the raw water tank, if, in fact, there's this
18 massive VOC loss, you would see it in the samples,
19 and we didn't. And so our assumption was that
20 there was negligible losses within the treatment
21 process, and so what -- the concentration in the
22 tank through the mixing model is the same as the
23 contamination anywhere throughout the distribution
24 system.

25 Q. Okay. But you're talking sort of --

1 you're talking in the context of model -- still the
2 model, right?

3 A. That's exactly correct, yes.

4 Q. And at the end of the day, a model is
5 an approximation of reality, right?

6 A. Yes.

7 Q. There is no way to perfectly replicate
8 reality, right?

9 A. No, a model is an approximation. Some
10 are closer approximations and some are -- are not
11 as close, but it is an approximation. But at the
12 end of the day, if we are going to test the model
13 out, I'm speaking generically now of the model,
14 then that's where we go and gather some field
15 information or sampling information and see if it,
16 in fact, proves or supports -- that's probably a
17 better word -- supports the assumptions that we
18 made using this model.

19 Q. The pumping data for Tarawa Terrace and
20 TT26, the wells in Tarawa Terrace and TT26 in
21 particular, that was limited, right?

22 A. The pumping data? We had -- we had
23 monthly data. We had some early on in the --
24 early, early '50s or '40s. We had some annual
25 pumpage data. And then in -- I believe from about

1 -- for Hadnot Point from about 1998 through 2008,
2 we had daily pumping values.

3 Q. You said from 1998 to 2008?

4 A. That's my recollection, yes, we had
5 daily -- daily values.

6 Q. Well -- and those values are sort of
7 outside the time period we're -- we're interested
8 in, right?

9 A. No. Again, you've got the
10 epidemiological study, which goes from '68 to '85,
11 but we're using -- and I'm going to limit this
12 right now to groundwater flow and contaminant fate
13 and transport models; those are boundary-valued
14 problems. So you've got to take them out or start
15 them from a period of known water level, a period
16 of known concentration, and run them out until you
17 get back to a period of known information.

18 We -- at Hadnot Point we had some known
19 information because they were doing remediation
20 pumping so that the models there went out all the
21 way to 2008 because it was another set of data in
22 addition to the 1980s data that could get -- build
23 confidence, substantial confidence, in the modeling
24 results. So the models went out or started based
25 on hydrogeologic and modeling concepts and

1 frametimed where -- and part of the model went
2 through the epidemiologic study period, the two --
3 in other words, the epidemiology did not control
4 when we started or ended the model.

5 Q. 1998 is after 1987, right?

6 A. Yes.

7 Q. And --

8 A. If you're interested in building
9 confidence in your model and testing out the
10 goodness of fit of your calibration, if you've got
11 another set of information past the epidemiology --
12 again, the epidemiology doesn't impact how we're
13 calibrating or developing the model -- then you
14 want to use that.

15 Q. I guess more broadly speaking, you
16 know, we can debate the points of the actual
17 modeling, which, you know, you're an expert on it
18 and I'm not. But if ATSDR's modeling accounted for
19 VOC losses, why was it necessary to make a
20 statement that the VOC losses were -- were
21 negligible and, you know, why was it necessary to
22 make that -- that determination?

23 A. Okay. Because you needed to somehow
24 quantify, I felt, what he meant by negligible. He
25 does not say zero. He said negligible, okay? And

1 I'm speaking again in terms of pragmatic
2 engineering applications doing modeling; you make
3 these kinds of assumptions, okay? He also had
4 wanted to make sure someone -- when we say
5 negligible, if they read the expert panel and saw
6 Dr. Pommerenk, who is, I believe, AH consultant for
7 the Marine Corps who sat on our expert panel
8 saying, well, less than 10 percent, then someone
9 reading our reports would say, okay, negligible 10
10 percent -- even if there's VOC losses, there's
11 somewhere less in that -- in that range, and now
12 I'm looking at sampling data and it doesn't appear
13 to be from the sampling data any -- even 10 percent
14 loss anywhere, so negligible is a good
15 approximation.

16 Q. You -- and coming out of the expert
17 panel, you-all landed on 10 percent, right?

18 A. That's what the expert panel said,
19 okay? And that's when we got together either in a
20 team meeting, not part of the expert panel, but,
21 you know, subsequent, because the expert panel made
22 many recommendations, which we typically either
23 generally followed, and we, you know, we would just
24 say, oh, well, it's 10 percent, that's negligible
25 compared to the variation and all the other

1 parameters. Sampling data, aquifer properties, and
2 things of that -- well operations, things of that
3 nature. So we were confident with the -- had
4 confidence in assuming negligible VOC losses.

5 Q. And the AEE report said up to
6 15 percent, right?

7 A. Yes.

8 Q. And so when -- when we're talking about
9 negligible in terms of the decision ATSDR made in
10 determining VOC losses were negligible, we're
11 talking about between 10 and 15 percent, right?

12 MR. DEAN: Object to the form of the
13 question. Mischaracterizes the prior testimony.

14 THE WITNESS: I would say it was 10
15 percent because the representative of AH Consulting
16 Dr. Pommernek, who was also representing the
17 Department of Navy, U.S. Marine Corps on the expert
18 panel then -- then said, well, you know, I'll give
19 you that 90 -- there's a 90 percent passthrough, so
20 that's 10 percent. And then we also had other
21 water distribution system experts on there and --
22 like Dr. Walski, Dr. Grayman, Dr. Clark, and they
23 indicated in their experience that there would be
24 even less than 10 percent negligible.

25 Q. Okay.

1 A. And they have done analyses with other
2 water distribution systems like Tucson, Arizona,
3 Redlands, California and so on.

4 Q. Let's turn to Exhibit 10, which is
5 Chapter A for Hadnot Point and Holcomb Boulevard.

6 A. Okay. Oh, I've got it open right here.
7 Okay.

8 Q. And let's turn to page A1.

9 A. Okay.

10 Q. So just -- just so the record is clear,
11 we're now discussing the analysis for Hadnot
12 Point/Holcomb Boulevard, right?

13 A. That is correct, summary of findings.

14 Q. And footnote number seven on the first
15 page states, "for this study, finished water is
16 defined as groundwater that has undergone treatment
17 at a water treatment plant and was subsequently
18 delivered to a family housing unit or other
19 facility. Throughout this report and the Hadnot
20 Point/Holcomb Boulevard report series, the term
21 finished water is used in place of terms such as
22 finished drinking water, drinking water, treated
23 water or tap water." Did I read that correctly?

24 A. Yes.

25 Q. So ATSDR modeled -- ATSDR said it

1 modeled water that had undergone treatment at a --
2 at a water treatment plant at Hadnot Point,
3 correct?

4 A. That's not what that says, or that's
5 not what I interpret that to say. What that is is
6 trying to define what finished water is, okay?
7 There are different names. Some people would say
8 potable water, okay? It's not the same as potable
9 water. It's not the same as groundwater. It's
10 treated water, but that statement does not say we
11 modeled the treatment process. And I've -- I've
12 never maintained that we modeled the treatment
13 process.

14 Q. Okay.

15 A. And our expert panel in 2005 also said
16 that the treatment process did not have to be
17 modeled.

18 Q. Let's turn to page A33.

19 A. Okay. Okay. I'm there.

20 Q. Looking at number nine.

21 A. Okay.

22 Q. It states, "reconstructed simulated
23 monthly mean concentrations of PCE, TCE, 1-2-DCE,
24 and vinyl chloride and benzene for finished water
25 at the Hadnot Point water treatment plant were

1 determined by using a materials balance model
2 simple" --

3 A. Materials mass balance.

4 Q. Excuse me. "Materials mass balance
5 model, simple mixing, to compute the flow-weighted
6 average concentration of the aforementioned
7 contaminants. This computational method is based
8 on the principals of continuity and conservation of
9 mass, Masters 1998. The use of the materials mass
10 balance method is justified because all raw water
11 from water supply wells within the Hadnot Point
12 water treatment plant service area was mixed at the
13 Hadnot Point water treatment plant prior to
14 treatment and distribution." And then it says,
15 "details of this method are described in a
16 subsequent section of the report." Did I -- did I
17 read all that correctly?

18 A. Yes.

19 Q. Would you agree that what ATSDR called
20 finished water at the Hadnot Point water treatment
21 plant was based on a material mass balance model,
22 simple mixing, to compute flow-weighted average
23 concentrations of contaminants?

24 A. Yes.

25 Q. And agree that mass -- a mass balance

1 -- agree it was a mass balance model based on
2 continuity and conservation of mass?

3 A. Yeah, that's what equations A1 and A2
4 in this report and equations one and two in the
5 Tarawa Terrace Chapter A report -- the first
6 equation is continuity. The second one is
7 conservation of mass.

8 Q. Agree that continuity and conservation
9 of mass means the simple mixing model assumed that
10 mass of all contaminants entering the water
11 treatment plant were conserved through the water
12 treatment plant?

13 A. Yes.

14 Q. Okay. And they continued, correct?

15 A. What do you mean?

16 MR. DEAN: Objection to form.

17 BY MR. ANWAR:

18 Q. It assumed that they continued the --

19 A. You mean the flow continued?

20 Q. The mass of the contaminants.

21 A. I'm not following you. Are you asking
22 did the concentration from one -- once it's mixed
23 at the raw water tank is the same as the
24 concentration in the finished water tank?

25 Q. I think you answered my question.

1 Let's -- would you agree ATSDR modeled influent to
2 the water treatment plant as having the same
3 contaminant concentrations as the effluent from the
4 water treatment plant?

5 A. No, we modeled -- the influent, to me,
6 by definition, would be the different wells coming
7 into the raw water treatment tank. If you look at
8 the water distribution system utility maps, you'll
9 -- you'll see that the raw water from wells were
10 typically piped over to the raw water tank through
11 concrete pipes, okay, underground pipes. So once
12 all the wells fed into there, in the raw water
13 tank, I assumed there was instantaneous mixing, as
14 the mixing model does, okay, and then that -- that
15 would equal the finished water concentration.

16 Q. Okay. Let's look at A62.

17 A. What? I'm sorry?

18 Q. A62.

19 A. On HP report?

20 Q. Yes.

21 A. Page 62. Okay. Okay.

22 Q. Looking -- focusing on Table A18, you
23 would agree that Table 18 shows, among other
24 things, measured TCE concentrations at the Hadnot
25 Point water treatment plant?

1 A. Yes.

2 Q. Looking at TCE, you would agree there
3 are only a few measurements each of treated and
4 untreated water?

5 A. Yes.

6 Q. Agree the data is insufficient to
7 conclude no treatment losses, right?

8 MR. DEAN: Object to form.

9 BY MR. ANWAR:

10 Q. You can answer.

11 A. Okay. Using the data that we have, you
12 always want more data as a modeler, okay, always.
13 That's -- okay. So if you're asking me as a
14 modeler would I want more data than this, yes, but
15 we were working with the data that we had and that
16 was presented to us. And given this data, I see,
17 again, July 27th, treated -- or let me see the
18 exact wording, untreated and treated, footnote five
19 and six, they are approximately the same value.
20 That's the data I referenced in my rebuttal report.
21 So you use that data because that's what we have.

22 Q. Direct me to that again.

23 A. On page A62, if you go to 7/27/82, the
24 first listing has a footnote five which says
25 untreated. The second listing, 7/27/1982, under

1 TCE, it says 21.

2 Q. You said 7/27/1982?

3 A. Yes.

4 Q. TCE. And then the listing underneath
5 it, you're saying is --

6 A. It gives the treatment status.

7 Q. And your -- your opinion is that the
8 model indirectly accounted for treatment losses
9 based on those two points of data?

10 A. Based on those two points. Based on,
11 also, the January 28th through February 4th, 1985
12 shutdown of the Holcomb Boulevard treatment plant
13 where we just saw huge slugs of TCE within the
14 Holcomb Boulevard treatment system -- not
15 treatment, but distribution system. So again, we
16 used a weight of evidence approach. And then,
17 again, referring back to the expert panel report
18 that said, well, we did 10 percent, we -- we said
19 that justified the assumption of negligible.

20 Q. For the samples that you're -- that
21 we're discussing, the 7/27/1928 for TCE.

22 A. Yes, uh-huh.

23 Q. ATSDR didn't know if HP651 was pumping
24 on that day, right?

25 A. We could go back to the reconstructed

1 -- reconstructed pumping schedule and -- and figure
2 out if it was pumping or not. I would have to look
3 -- I would have to look at our pumping schedule.

4 Q. Okay. But that's a reconstructed
5 pumping schedule, correct?

6 A. It's still the only thing close to
7 reality that we have.

8 Q. But it's not reality, right?

9 MR. DEAN: Object to form.

10 THE WITNESS: It's what we used to
11 reconstruct and then compare these values to -- to
12 that. So it was -- it was pumping in the model.

13 BY MR. ANWAR:

14 Q. For -- in the absence of pumping data
15 for Tarawa Terrace, at least --

16 A. Right.

17 Q. -- ATSDR assumed that a well was
18 pumping unless you had evidence affirmatively
19 disproving that it was pumping, correct?

20 A. That is correct. And we then tested
21 that out through an uncertainty analysis by varying
22 the pumping through a Monte Carlo-type uncertainty
23 analysis, but the calibrated model assumed
24 continuous pumping unless it was shut down for
25 maintenance purposes.

1 Q. And with respect to the samples that
2 we've been discussing, the July 27, 1982, ATSDR
3 didn't know if HP651 was pumping the day before
4 either, right?

5 A. No, there's no indication as to the
6 status of the water supply wells feeding the raw
7 water tank. These are taken at the treatment
8 plant, not at the wells, if I'm -- yes, these are
9 taken at the treatment plant. So the wells have
10 already mixed, on, off, whatever.

11 Q. When you say no indication, what do you
12 mean?

13 A. There's no -- this table here is from
14 the water treatment plant, okay?

15 Q. Yeah.

16 A. So it does not contain an indication as
17 to which wells were on, which wells were
18 contaminated, which wells were on and not
19 contaminated, and which wells were off, okay?
20 This -- this particular table, okay? This is a
21 result of applying the -- a mixing model, a
22 flow-weighted mixing model.

23 Q. When you say this is the result, what
24 do you mean "this?"

25 A. Well, if you look under the

1 reconstructed column, the middle column there.

2 Q. Yeah.

3 A. Okay. That's what -- once we got the
4 concentrations out of the model for each of the
5 Hadnot Point wells --

6 Q. Yeah.

7 A. -- and we can tell which ones were
8 operating, which ones were not and have a zero
9 there, and then we knew what the reconstructed
10 concentration is, so then we would tabulate those
11 into an Excel spreadsheet, do the flow-weighted
12 mixing in the Excel spreadsheet.

13 Q. And, you know, I'm talking about not
14 the reconstructed schedule, but about real-world
15 data?

16 A. I understand that, but, again, as I
17 think we've discussed real early on, if my
18 recollection is correct, these are one point in
19 time samples, okay? And we are -- we are doing
20 monthly simulations, monthly results. So that's,
21 you know, just -- you need to keep that in mind
22 when you're looking at data versus modeling
23 results.

24 Q. Agree -- you would agree that you don't
25 know the percentage of water in those samples that

1 came from HP651?

2 A. Not in the -- not in the samples, but I
3 would know -- I would have to tabulate it, but I
4 would know in the reconstructed column.

5 Q. But the reconstructed column is a
6 simulation, right?

7 A. That's our best estimate, most likely
8 estimate.

9 Q. Okay. And that's because you don't
10 know the real-world data on whether -- what
11 percentage of water in those samples came from
12 HP651?

13 A. Not from the sampling data. However,
14 you do have the previous table, I think, or
15 somewhere in here, it's early on, there is a table
16 -- let's see. Here you go. Page A48.

17 Q. So I wanted to actually change topics a
18 little bit.

19 A. Oh, sure. Okay.

20 Q. Shift gears a little bit. You would
21 agree that it takes time for water to get through
22 the -- the water treatment plant, right?

23 A. Compared to the groundwater system,
24 it's instantaneous. I'm talking about hours or
25 maybe even minutes compared to days or months or

1 longer than that, you know. That's -- I think, as
2 I said previously, water distribution system models
3 use an hour time step, and you typically would
4 measure pressures. If you had any concentrations,
5 you would measure those at, say, at 15-minute
6 intervals, so you're talking about a much more
7 rapid process.

8 Q. Similar to our discussion on TT26 for
9 Hadnot Point, you would agree that whether --
10 whether HP651 was pumping had a significant impact
11 on the concentration of TCE entering the Hadnot
12 Point water treatment plant, right?

13 A. Yes.

14 Q. And you would agree that when HP651
15 stops pumping or stopped pumping, concentration of
16 TCE entering the Hadnot Point water treatment plant
17 would go down very quickly?

18 MR. DEAN: Object to the form.

19 THE WITNESS: Well, we could look at
20 the graph on page A63 in Chapter A here, Figure
21 A27. And you do see up and down with -- of TCE at
22 the water treatment plant, which is indicative of
23 cycling on and off of HP651. But unlike TT26, the
24 only time it goes to zero or close to zero is after
25 they completely turned the well -- the well off.

1 Q. But when HP651 stops pumping,
2 concentration of TCE entering the HP -- the Hadnot
3 Point water treatment plant goes down, right?

4 A. It -- it gets reduced, but because
5 there were so many -- there were other wells
6 pumping and contributing to the water treatment
7 plant and supplied -- supplied water, some of those
8 other wells, if they were contaminated, would --
9 would, you know, add to the concentration at the
10 water treatment plant.

11 Q. You would agree that when HP651 stops
12 pumping, at that very moment water coming out of
13 the Hadnot Point water treatment plant entered into
14 it with TCE concentrations from when HP651 was
15 pumping, correct?

16 A. Could you repeat the question again?
17 I'm sorry. I didn't follow.

18 Q. Sure. So when -- when HP651 stops
19 pumping, the water that was pumping into the Hadnot
20 Point water treatment plant doesn't immediately go
21 away, right?

22 A. That is correct.

23 Q. That water that had been pumping from
24 HP651 continues through the water treatment plant,
25 correct?

1 A. Yes. Again, the pipes are pressurized
2 and water is flowing full, okay? A storage tank is
3 not pressurized like the distribution pipeline, but
4 it's full, and so it's not that you have no water
5 stopped at 651 and then the raw water tank has no
6 more water in it. It's still filled with the
7 previous day's concentration, and if 651 was not
8 pumping on a particular day, you would still have
9 contaminated water in that raw water tank.

10 Q. And so carrying that through to
11 conclusion, if 651 stopped pumping and that water
12 -- but the water that had been pumping from 651
13 into the Hadnot Point water treatment plant entered
14 into it and then continued to be distributed, the
15 finished water sample from -- from that water that
16 pumped through 651 -- or excuse me, from the 651
17 water that had pumped through the Hadnot Point
18 water treatment plant would reflect that
19 contaminated water, right?

20 MR. DEAN: Object to form.

21 THE WITNESS: Okay. Could you clarify
22 that?

23 BY MR. ANWAR:

24 Q. Sure. So a moment ago you agreed with
25 me that when HP651 stops pumping, at that precise

1 moment the water that had been pumping into the
2 water treatment plant at Hadnot Point doesn't go
3 away, right?

4 A. That is correct.

5 Q. It -- that water that had been pumping
6 from 651 remains in the water treatment plant,
7 correct?

8 A. Yes, the water that's there the
9 previous day when HP651 was pumping, let's say --
10 for argument's sake let's say it's still there,
11 okay, but over a day's period it probably moved
12 through the treatment process.

13 Q. And a moment ago we -- we discussed
14 that ATSDR treated or used a mixing model for
15 purposes of finished water, correct?

16 A. That is correct.

17 Q. And so -- well, let's -- let's --
18 stepping away from the model, that water in the
19 Hadnot Point treatment plant from 651, that doesn't
20 immediately disappear, that still ends up in the
21 finished water, correct?

22 A. That is correct.

23 Q. Okay. And then 651 is now stopped and
24 other wells are pumping water to it, correct?

25 A. They are compensating for the loss of

1 the volume of the well, okay? Because at the end
2 of the day, when we were there in 2004 and
3 historically, having spoken with past operators,
4 they had to keep their tanks, finished water tanks
5 nearly filled for fire protection, okay, so they --
6 you would have had to compensate for HP651 with
7 other -- other wells.

8 Q. And those other wells pumping into the
9 HP treatment plant could include wells that weren't
10 contaminated, right?

11 A. That is correct.

12 Q. So in that case, if you were to take an
13 untreated sample and compare it to the treated
14 sample from the -- the HP651 water that went
15 through the system, the treated water would be
16 higher, likely, than the -- the untreated water
17 sample taken at the water treatment plant?

18 A. Again, I think we need to view this in
19 terms of the historical reconstruction that we did
20 on a monthly basis. Even though -- even though the
21 distribution system does the EPANET model, you can
22 do hourly calculations, meaning you can do daily
23 calculations. The output from the contaminant fate
24 and transport model and the mixing model are valid
25 on a monthly basis. So over a month, you would

1 have seen 651 come back on.

2 Q. But again, we're talking about the
3 model simulation world and not the real world?

4 A. But that's what we did at ATSDR. I
5 mean, that's -- that's the whole concept of
6 historical reconstruction or modeling in general,
7 is that we used models and applied models where we
8 may not have information, real data, and you build
9 confidence by the calibration process to use -- use
10 those models. We took, at ATSDR, the sampling data
11 that was provided to us by the Marine Corps,
12 Department of Navy or other -- other water quality
13 labs and that's the data that -- that we had.

14 Q. I'm going to hand you what I'm marking
15 as --

16 MR. ANWAR: I'm sorry. Can you remind
17 me, is this 15? I forgot to write one down. 16.

18 (DFT. EXHIBIT 16, Analyses and
19 Historical Reconstruction of Groundwater Flow,
20 Contaminant Fate and Transport, and Distribution of
21 Drinking Water Within the Service Areas of the
22 Hadnot Point and Holcomb Boulevard Water Treatment
23 Plants and Vicinities, U.S. Marine Corps Base Camp
24 Lejeune, North Carolina, Chapter A-Supplement 2,
25 Development and Application of a Methodology to

1 Characterize Present-Day and Historical Water
2 Supply Well Operations, was marked for
3 identification.)

4 BY MR. ANWAR:

5 Q. Did I actually hand you the exhibit?

6 A. No.

7 Q. Sir, do you have the exhibit?

8 A. No, you didn't tell me what 16 was.

9 Q. Sorry. I just put the sticker on it
10 and I lost my train of thought. I'll just put
11 another sticker on it.

12 Okay. I'm handing you what I've marked
13 as Exhibit 16.

14 A. Supplement 2. Okay.

15 Q. Can you turn to page -- so for
16 starters, this is part of the Hadnot Point/Holcomb
17 Boulevard analysis, correct?

18 A. Yes, it's Supplement 2 of Chapter A.

19 Q. Okay. And the title is "development
20 and application of a methodology to characterize
21 present-day and historical water-supply well
22 operations", correct?

23 A. That is correct.

24 Q. Okay. If you could turn to page S2.2.

25 A. 2.2. Okay. 2.2. Okay. Background?

1 Q. Yeah.

2 A. Okay.

3 Q. And so at the top of that page on the
4 right-hand side --

5 A. Right.

6 Q. -- paragraph starting "detailed daily
7 data."

8 A. Let me just take a look. Okay. I'm
9 there.

10 Q. Okay. So it starts by stating,
11 "detailed daily data pertaining to the pumping
12 schedule of the wells are available subsequent to
13 January 1998", correct?

14 A. That's -- yes, that's what we
15 previously discussed.

16 Q. Sure. And then "prior to 1998, data
17 pertaining to wells operation are limited or
18 unavailable", correct?

19 A. That is correct.

20 Q. And then it goes on to state,
21 "similarly, daily water treatment plant raw water
22 samples are available" --

23 A. Raw water volumes.

24 Q. Volumes. Excuse me, are -- let me
25 reread that.

1 A. Okay.

2 Q. "Prior to, similarly, daily water
3 treatment plant raw water volumes are available
4 after December 1994", correct?

5 A. That is correct.

6 Q. "And then between 1980 and 1994,
7 monthly raw water volumes are available. Yearly
8 volumes are available for some times -- for some
9 years prior to 1980. A trendline was used to
10 estimate raw water flows for years prior to 1980
11 when no data exist. Monthly raw water flow
12 percentages were then calculated using known
13 monthly data for the period 1980 to 2004. These
14 values are used to estimate monthly raw water flows
15 prior to 1980. This methodology is based on two
16 assumptions: Similar characteristics of the
17 operational patterns of the wells and water
18 treatment plants for the periods of time before and
19 after January 1998 and, two, the quality between
20 total water volume delivered to the water treatment
21 plant from the operating wells and the water
22 treatment plant raw water volume data at all
23 times." Did I read that correctly?

24 A. Yes, you did.

25 Q. Okay. Agree -- you'd agree that prior

1 -- based on this, prior to 1998, data pertaining to
2 well operations was limited or unavailable?

3 A. Yes, that's what that says.

4 Q. Agree that according to this, that
5 there were daily water treatment plant raw water
6 volumes available after 19 -- after December 1994,
7 correct?

8 A. Yes.

9 Q. Agree there were monthly raw water
10 volumes available for 1980 to 1994, right?

11 A. Yes.

12 Q. And then there were some yearly volumes
13 prior to 1980, right?

14 A. That is correct.

15 Q. ATSDR had to estimate pumping schedules
16 due to the lack of this data, right?

17 A. We had to estimate pumping schedules to
18 get the operational -- I'm equating operational and
19 pumping schedules to be able to code them in -- on
20 a monthly basis to the -- to the model, to the
21 groundwater flow and contaminant fate and
22 transport.

23 Q. And so if we go on to the next
24 paragraph, data availability.

25 A. Okay.

1 Q. "Four types of data sources pertinent
2 to water supply well operation -- operational
3 records and water treatment plant raw water records
4 are used in this supplement." It says "these are
5 daily operational records, January 1998 to
6 June 2008. Number two, Camp Lejeune historic
7 drinking water consolidated document repository
8 records. Number three, Camp Lejeune water
9 documents. Number four, U.S. Geological Survey.
10 Using these data sources, operational chronologies
11 for 1996" -- excuse me.

12 A. Wait.

13 Q. "Using these data sources operational
14 chronologies for 96 wells supplying groundwater, in
15 parentheses, raw water, to the Hadnot Point water
16 treatment plant and Holcomb Boulevard water
17 treatment plant were developed." Did I read that
18 correctly?

19 A. Yes, yes.

20 Q. You would agree that ATSDR didn't use
21 pumping data from the '80s, but used data from
22 pumping schedules after 1998 to estimate pumping
23 schedules during 1953 to 1987?

24 A. The way the methodology that's
25 described in Supplement 2, there was a training

1 period and then a predictive period. So the
2 training period typically went from 1998 to 2008
3 because that was known information on a daily
4 basis. And once we obtained the characteristics of
5 the operating wells based on that, then we could go
6 out and where we either had partial data or missing
7 data, use the prediction from there and apply the
8 prediction to the data gaps.

9 Q. So for Hadnot Point/Holcomb Boulevard
10 analysis and the model, you used predictions based
11 on pumping schedules after 1998, correct, to -- to
12 let me ask that again.

13 So based -- for Hadnot Point/Holcomb
14 Boulevard you used pumping schedules from after
15 1998 and predicted backwards the pumping schedules
16 during 1953 to 1987, right?

17 MR. DEAN: Object -- object to the
18 form.

19 THE WITNESS: Again, it says -- I think
20 it was up -- yeah, we also used -- for data we're
21 missing a trendline, which is an accepted
22 statistical approach in engineering. And the
23 algorithm developed by who is now Dr. Telci, the
24 first author on here. At the time he was with
25 Georgia Tech, used the training period for periods

1 of known water supply operations and then used the
2 predictive period for when we had to predict the
3 operations. So you have a combination of both
4 training and prediction.

5 BY MR. ANWAR:

6 Q. And that's training and prediction, but
7 that's -- that's both simulated pumping schedules,
8 correct?

9 A. No, well, the training was based on
10 daily data, okay, and all we're interested in is
11 monthly.

12 Q. The training was based on pumping
13 schedule data after 1998, correct?

14 A. Yes, yes.

15 Q. And then the simulated is the pumping
16 schedule from 1953 to 1987, right?

17 A. It would go through '98, actually. I
18 mean, for -- Hadnot Point/Holcomb Boulevard didn't
19 come online until '72, so you have different
20 periods there, but, yes, it would -- that's the
21 predictive period, is where you had either limited
22 -- because you might have a month information here
23 and there and stuff like that, but that's -- or
24 unknown information that you would use the
25 predictive values that came out for each well, each

1 certain well.

2 Q. Let's turn to page S12.

3 A. Okay. Okay.

4 MR. DEAN: S2.12 or just S12?

5 MR. ANWAR: I'm sorry. It's S2.12.

6 MR. DEAN: Okay.

7 MR. ANWAR: I've been staring at these
8 documents too long.

9 BY MR. ANWAR:

10 Q. And at the top of the left-hand --

11 A. Right.

12 Q. -- page it says, historical
13 reconstruction period, 1942 to 2007, prediction
14 process, correct?

15 A. Right.

16 Q. And this is the -- the training and the
17 -- this -- this paragraph in this section is
18 addressing the training and the prediction process
19 you were just describing, correct?

20 A. I believe it is. This shows the start
21 of prediction process. There should be another
22 flow chart somewhere, I seem to recall.

23 Q. I wanted to just ask you about some of
24 the language in the first paragraph.

25 A. Okay. Sure, sure. Go ahead.

1 Q. It says, "similar to the training
2 process, the prediction process, PP, is structured
3 as a series of calculations and checking steps.
4 The results of the steps were placed in separate
5 sheets of a Microsoft Excel workbook." And then
6 that last sentence, "because some wells did not
7 physically exist during the training period,
8 surrogate wells were selected to represent these
9 untrained wells." Did I read that correctly?

10 A. Yes, yes.

11 Q. And so you would agree in the training
12 process for reconstructing historical well pumping
13 schedules, ATSDR used surrogate wells for wells
14 that were untrained?

15 A. No, for wells that -- wells that did
16 not physically exist, okay? If you look at Figure
17 S2.2 on page S2.4.

18 Q. 2.4?

19 A. Yes. It's a full-page figure.

20 Q. Okay. Oh, I see. It's 2.4 --

21 A. S2.4, Figure S2.2.

22 Q. Okay. Yeah, I'm looking at 2.40. Go
23 ahead.

24 A. Okay. For example, you can take an
25 example here, let's just look at -- coming down,

1 HP604, okay? It stops operations at about 1960,
2 but then you've got HP637. So HP604 may be -- or
3 HP637 may be a surrogate well because HP604 no
4 longer exists. And I think we list the --
5 somewhere in here there's a table -- oh, there you
6 go. The surrogate wells, okay. Table S2.2 on page
7 S2.13, there's a list.

8 Q. Okay. So --

9 A. And looking at those wells and looking
10 at that figure, you can see which wells were
11 surrogate for wells that were no longer operating.

12 Q. On S2.13.

13 A. Yes.

14 Q. Table S2.2.

15 A. Right.

16 Q. Just looking at that, the surrogate
17 wells include -- let me double-check. Surrogate
18 wells were used for HP651, HP634, HP602, HP603 and
19 HP608, right?

20 A. 608, yes.

21 Q. You would agree that ATSDR modeled
22 reconstructed pumping schedules for these wells --
23 strike that.

24 Okay. You would agree that ATSDR
25 modeled reconstructed pumping schedules for these

1 wells based on 1998 to 2008 pumping schedules for
2 different wells, correct?

3 A. Say that -- say that again.

4 Q. Sure. So a moment ago we talked -- you
5 know, we -- we went through a list of the wells,
6 651, 634, 602, 603, 608, for which surrogate wells
7 were -- were used, right?

8 A. Yes.

9 Q. And to determine the pumping schedule
10 for these wells, 651, 634, 602, 603, 608, ATSDR
11 reconstructed the pumping schedule for surrogate --
12 based on surrogate wells from 1998 to 2008,
13 correct?

14 A. Yes.

15 Q. Okay.

16 A. That was the training period.

17 Q. Let's go back to Exhibit 10, which is
18 Chapter A for Hadnot Point/Holcomb Boulevard.

19 A. Okay. I'm right here. Yes.

20 Q. Give me a second and I will catch up
21 with you. Turn to page A84, please.

22 A. Okay. A84. Okay. Where it says
23 "trichloroethylene source release date sensitivity
24 analysis?"

25 Q. Correct.

1 A. Okay.

2 Q. So this is a discussion in Chapter A
3 for Hadnot Point/Holcomb Boulevard about TCE's
4 source release date and the sensitivity analysis
5 that was performed, correct?

6 A. Yes.

7 Q. Okay. So I wanted to start by reading
8 from that first paragraph on the left.

9 A. Okay.

10 Q. Which starts, "historical records
11 delineating the timing and volume of inadvertent
12 releases of solvents during routine -- routine
13 operations from leaking" -- it says "UST". Those
14 are underground storage tanks, right?

15 A. That's correct.

16 Q. Okay. "From leaking UST systems or
17 from disposal solvent waste, spent dry cleaning
18 filters or other materials, were not available for
19 the Hadnot Point/Holcomb Boulevard study area."
20 Did I read that correctly?

21 A. Yes.

22 Q. "For modeling purposes, a median source
23 release date of nine years from the date of the
24 underground storage tank system installation or
25 site development, in the case of the HPLF area",

1 which is a Hadnot Point landfill area, "was used in
2 the contaminant fate and transport models." Did I
3 read that correctly?

4 A. Yes.

5 Q. "This source release date formulation
6 is consistent with empirical data indicating that
7 the median time frame for leak development in
8 underground storage tank systems, typically in
9 piping and joint components, is nine years from
10 installation date." And there's a source to an EPA
11 document and another cite source. Did I read that
12 correctly?

13 A. That is correct.

14 Q. Okay. Then it goes on to state, "UST
15 systems were not the source of contaminants in the
16 Hadnot Point landfill area. However, given the
17 lack of historical information, a similar source
18 release time frame, in this case seven years from
19 site development, was applied to the Hadnot Point
20 landfill area sources within the model." Did I
21 read that correctly?

22 A. Yes.

23 Q. Would you -- you'd agree, based on this
24 paragraph, that historical records delineating or
25 providing information about the time and volume of

1 solvent contaminant releases from underground
2 storage tank systems, disposal of solvent waste,
3 spent dry cleaning filters or other materials
4 wasn't available for the Hadnot Point area?

5 A. That is correct. And that is why we
6 went to external references or other references
7 like the ones that we -- we cited, the EPA report
8 '6/'87 and the Gangadharan, et al., '87. I think
9 they discussed something like over 12,000 tanks
10 that they analyzed that -- and so we -- we felt
11 that was a good source of information to use.

12 Q. ATSDR -- still based on this paragraph,
13 you would agree ATSDR, the Hadnot Point/Holcomb
14 Boulevard model, assumed all underground storage
15 tank systems began releasing contaminants nine
16 years after the system was installed, right?

17 A. It's -- typically it was the piping
18 joints, okay? I think we say in there the actual
19 tank did not necessarily leak, but it was at the
20 pipe joints because of the construction methods
21 back then in the '40s and '50s and '60s, unlike
22 today where you have to have a concrete pad, solid,
23 and then you put the tank on. They just dug the
24 hole, put the tank on, then when they -- and
25 connected the pipes. And when the tank filled up,

1 then the pipes flexed, and that's where you got the
2 leakage.

3 Q. So it -- ATSDR, the Hadnot
4 Point/Holcomb Boulevard model assumed that the
5 piping joints for underground storage systems began
6 releasing contaminants nine years after
7 the systems --

8 A. Yes, based -- based --

9 Q. -- were installed?

10 A. -- on the references that we cited.

11 Q. Okay. And as you indicated, based on
12 references, that was based on an EPA study on
13 underground storage tank system leaks, that
14 following nine years was the median time frame for
15 leak development?

16 A. Yes.

17 Q. ATSDR assumed contaminant sources in
18 Hadnot -- in the Hadnot Point landfill started
19 seven years --

20 A. Yes.

21 Q. -- after site development, right?

22 A. Yes.

23 Q. Okay.

24 A. That's because the landfill, to our
25 knowledge, was unlined and it was not tanks. It

1 was just disposal of landfill material,
2 contaminated landfill material.

3 Q. And it was necessary to make these
4 assumptions about sort of the contaminant start
5 dates because the information of when the
6 underground storage tanks and the Hadnot Point
7 landfill began releasing contaminants, that's not
8 available, right?

9 A. You're talking about the Hadnot Point
10 industrial area or the landfill?

11 Q. Well, let's -- let's break them up.

12 A. Okay.

13 Q. So the assumption was made about
14 underground storage tanks systems beginning to
15 release contaminants nine years after the system
16 was installed, right?

17 A. Yes, that would be the Hadnot Point
18 industrial area.

19 Q. And -- but that's because -- and that
20 assumption was made because the data available
21 precisely identifying or pinning down when the
22 underground storage tanks began releasing
23 contaminants does not exist?

24 A. That is correct.

25 Q. Okay. And the same is true for the --

1 the Hadnot Point landfill assumption, correct?

2 A. Right. And we used a shorter time
3 period, again, because there were not underground
4 storage tanks, per se. It was a landfill, most
5 likely unlined, okay, and not individual tanks, but
6 just waste thrown or disposed of into the landfill.
7 So we assumed it would have a, you know, two-year,
8 short period until it started leaking for the
9 modeling purposes.

10 Q. But -- okay. Understood. But in terms
11 of real-world data, in terms of the actual data,
12 precisely pinning down when the Hadnot Point
13 landfill started releasing contaminants, that
14 doesn't exist, right?

15 A. Not to my knowledge, but that, again,
16 is part of the model -- model calibration process,
17 okay? That makes the source, then, a calibration
18 parameter both in terms of strength and in terms of
19 duration.

20 Q. Okay. And if -- turning to the next
21 page, A85.

22 A. Yes.

23 Q. That's the calibration you're -- you're
24 referencing, right?

25 A. That's a sensitivity -- you're in the

1 sensitivity analysis section, which is part of the
2 uncertainty analysis. We wanted to see the impact
3 of varying, again, the source release date.

4 Q. And that's what I meant. So this -- as
5 I read the sensitivity analysis, you varied the
6 release source -- the source release date from a
7 period of -- let's see -- minus nine years, meaning
8 nine years before the calibrated source release
9 date, to plus nine years, meaning nine years after
10 the calibrated release source date, correct?

11 A. That is correct.

12 Q. And in all of these scenarios, nine
13 years before the release -- calibrated source
14 release date, the model was still able to -- well,
15 strike that.

16 Well, can you remind me, what was the
17 calibrated source release date?

18 A. Hold on. Let me see. I have to go
19 back to off the top of my head. Well, the model
20 started in 1942 for Hadnot Point.

21 Q. Sure.

22 A. Hadnot Point landfill industrial, 1942,
23 I believe. So nine -- nine years after that would
24 be 1951, so that would be the calibrated.

25 Q. Okay. I've got you. Let's -- looking

1 -- returning back to the sensitivity analysis.

2 A. Okay.

3 Q. As -- you agree that this shows the
4 effect of the calibrated model of varying the start
5 date of contaminant sources, right?

6 A. Yes. What it does not show, as any
7 sensitivity analysis, it doesn't show whether
8 that's realistic or not. These are numerical,
9 okay? In other words, it just shows numerically
10 how the concentrations would shift forward or
11 backwards depending on the release date.

12 Q. In all of these scenarios, nine years
13 earlier than the calibrated source release date --

14 A. Right.

15 Q. -- five years earlier than the
16 calibrated source release date, the actual
17 calibrated source release date, which I see there,
18 it appears to be 1951, 1952?

19 A. Yeah, that's what we said, yeah.

20 Q. Yeah. Five years after the calibrated
21 release source date --

22 A. Right.

23 Q. -- nine years --

24 A. Right.

25 Q. -- after the calibrated release source

1 date, they all seem to converge during the period
2 of the epidemiological study. Do you see that?

3 A. Yes.

4 Q. And so based on the sensitivity
5 analysis, it's possible any one of these ranges
6 could have been the release source date?

7 A. No, because we assumed, as we did with
8 Tarawa Terrace, that we had a -- the calibrated
9 parameters would be your most likely to have
10 occurred, okay? And then these others are just
11 seeing the impact on -- on the model, I mean,
12 that's, you know, a five-year or nine-year change
13 is a pretty major, major change --

14 Q. Don't these --

15 A. -- of the release date, okay, so -- but
16 the most likely one is the calibrated one. I think
17 that's important to understand.

18 Q. I understand that the -- the most
19 likely is the -- you know, it's your opinion the
20 most likely --

21 A. Yes.

22 Q. -- is the calibrated?

23 A. Yes.

24 Q. But doesn't the sensitivity analysis
25 show that plus or minus nine years or five years

1 from the calibrated source release date, that it's
2 possible?

3 A. It's a possibility.

4 MR. DEAN: Object to the form.

5 THE WITNESS: It's a possibility, but,
6 again, that's -- typically, when you're conducting
7 sensitivity analyses and uncertainty analyses, you
8 want to get an understanding of how the system is
9 reacting to changes in -- in this case, it's a
10 single parameter.

11 Q. I'm going to mark another exhibit.

12 (DFT. EXHIBIT 17, Analyses and
13 Historical Reconstruction of Groundwater Flow,
14 Contaminant Fate and Transport, and Distribution of
15 Drinking Water Within the Service Areas of the
16 Hadnot Point and Holcomb Boulevard Water Treatment
17 Plants and Vicinities, U.S. Marine Corps Base Camp
18 Lejeune, North Carolina, Chapter C: Occurrence of
19 Selected Contaminants in Groundwater at
20 Installation Restoration Program Sites, was marked
21 for identification.)

22 BY MR. ANWAR:

23 Q. I'm handing you what I'm marking as
24 Exhibit 17.

25 A. Chapter C. Okay.

1 Q. This is Chapter C for the Hadnot
2 Point/Holcomb Boulevard analysis, correct?

3 A. That's correct.

4 Q. I would like you to turn to C98.

5 A. C98. Okay. Well, okay. Let's -- let
6 me rearrange the clip so I can...

7 Q. What's that?

8 A. Let me rearrange the clip.

9 Q. Sure.

10 A. Okay. C98. Okay. Table C8.

11 Q. Yes, Table C8. And Table C8 is
12 entitled -- or titled "summary of analysis for
13 benzene, toluene, ethylbenzene and total xylene and
14 water samples collected at Hadnot Point water
15 supply wells, Camp Lejeune", right?

16 A. Right.

17 Q. Okay. I wanted -- directing your
18 attention to HP602.

19 A. Okay.

20 Q. It has concentrations there for one,
21 two, three, four, five, six, seven, eight dates
22 there between 1984 to 1981, correct?

23 A. Yes, with two below detection limits.

24 Q. Correct, so two below detection limits
25 for HP602?

1 A. Yes.

2 Q. And then the other five above detection
3 limits with some value?

4 A. No, there's six.

5 Q. Oh, there's six. Excuse me.

6 The other six are above the detection
7 limit with some value and they are all ranging from
8 1984 to 1991, correct?

9 A. That is correct.

10 Q. And it appears five of the samples, the
11 -- for benzene there at HP602 are from '84?

12 A. Is that a question? I'm sorry.

13 Q. Yeah, is that right?

14 A. Okay. I've got one from '84, one, two,
15 three, four. Four above detection limits are from
16 1984.

17 Q. Okay. And then there's one from '85,
18 one from '86, then one from '91, correct?

19 A. Yes, that's correct.

20 Q. And then if we go down to HP608.

21 A. Okay.

22 Q. There are four samples between '84 and
23 '86, correct?

24 A. Yes.

25 Q. And one appears to be below the

1 detection limit?

2 A. Right.

3 Q. Okay. You would agree that this table,
4 it summarizes the measurements of benzene at the
5 Hadnot Point water supply -- water supply wells,
6 right?

7 A. Yes.

8 Q. And agree that benzene -- you would
9 agree that benzene at the Hadnot Point source wells
10 found only benzene above the detection limit at
11 HP602 and HP608, correct?

12 A. 608, yes. Let me -- 608, that's
13 correct, and then -- yes, above -- yeah, above the
14 detection levels, yes.

15 Q. And the samples at 602, the
16 concentration levels of benzene and the samples at
17 602 are much higher than the samples at 608, right?

18 A. Yes.

19 Q. For instance, the highest sample there,
20 at 602, is 720 micrograms per liter, right?

21 A. Yes.

22 Q. And the highest sample at 608 appears
23 to be four micrograms per liter?

24 A. Yeah, yes.

25 Q. Okay. So you would agree that the

1 driving source of benzene contamination at the
2 Hadnot Point water treatment plant was HP602,
3 right?

4 A. I would actually like to look at my
5 graphs here because we really need to look at --
6 okay. Benzene. HP602, yes.

7 Q. That was the --

8 A. Yes.

9 Q. -- driving source of benzene
10 contamination for that Hadnot Point water treatment
11 plant, right?

12 A. That's -- that's the measured data that
13 we have, so yes.

14 Q. Okay.

15 A. Based -- based on the measured data.

16 Q. Okay.

17 A. And the -- and the supply list.

18 Q. Let's turn back to -- I'm jumping
19 around a little bit -- Chapter A for Hadnot Point,
20 which is Exhibit 10.

21 A. For Hadnot Point? Yeah, I've got it
22 right here.

23 Q. Actually it's Supplement 1 for --

24 A. Okay. I don't have Supplement 1. I've
25 got Supplement 2 that you gave me.

1 Q. Okay. Let me mark it, then.

2 THE VIDEOGRAPHER: Sir, I'm going to
3 need to change the media when you get to a stopping
4 point.

5 MR. ANWAR: Sure. Let's stop right
6 now.

7 THE VIDEOGRAPHER: All right. Going of
8 record. The time is 3:59 p.m.

9 (A recess transpired.)

10 THE VIDEOGRAPHER: Okay. We are going
11 back on record. The time the 4:10 p.m.

12 BY MR. ANWAR:

13 Q. We are back on the record from a short
14 break, Mr. Maslia. Are you okay to continue?

15 A. Yes.

16 Q. Okay. Did you speak with your counsel
17 outside or during the break?

18 A. No, I did not.

19 Q. Okay. Thank you.

20 I'm handing you what I'm marking as
21 Exhibit 18.

22 (DFT. EXHIBIT 18, Analyses and
23 Historical Reconstruction of Groundwater Flow,
24 Contaminant Fate and Transport, and Distribution of
25 Drinking Water Within the Service Areas of the

1 Hadnot Point and Holcomb Boulevard Water Treatment
 2 Plants and Vicinities, U.S. Marine Corps Base Camp
 3 Lejeune, North Carolina, Chapter A-Supplement 1,
 4 Descriptions and Characterizations of Data
 5 Pertinent to Water-Supply Well Capacities,
 6 Histories, and Operations, was marked for
 7 identification.)

8 BY MR. ANWAR:

9 Q. Okay. This is Chapter A, Supplement 1
 10 for the Holcomb Boulevard/Hadnot Point analysis --
 11 or the Hadnot Point/Holcomb Boulevard analysis.

12 A. Right, that's correct.

13 Q. And it's titled "descriptions and
 14 characterizations of data pertinent to water-supply
 15 well capacities, histories and operations", right?

16 A. Yes.

17 Q. Okay. If you could turn to page S117.

18 A. Okay. I'm there.

19 Q. S117 is a figure for well HP602, right?

20 A. It's a table, yes.

21 Q. Table. You'd agree that this table
 22 shows what ATSDR concluded about HP602 operating
 23 history and capacity history, right?

24 A. Yes.

25 Q. Okay. You'd agree that well HP602 had

1 a relatively small capacity, right?

2 A. I would say -- I would say it'd
3 probably have an average capacity. I mean, there's
4 some -- like 69 goes down to 50 or 30, it looks
5 like. They then redeveloped the well. So I would
6 say it's average. It's average capacity.

7 Q. If you compare it to HP well 608 on
8 page S126.

9 A. HP608. Okay.

10 Q. Would you agree that the capacity for
11 well HP602 was less than, generally speaking, the
12 capacity for well HP608?

13 A. Yes.

14 Q. And focusing back on HR602 on S117.

15 A. Okay.

16 Q. Would you agree that the capacity
17 fluctuated significantly?

18 A. Yes, it fluctuated.

19 Q. Okay. And it fluctuated in a range
20 from 30 GPM on September 4th, 1969 --

21 A. Right.

22 Q. -- to 154 GPM on October 24, 1984,
23 right?

24 A. Yes.

25 Q. Looking at the table for HP602, you

1 would agree that HP602 was out of service multiple
2 times, correct?

3 MR. DEAN: Object to the form.

4 THE WITNESS: No, it's only out of
5 service one, two, three -- three times.

6 BY MR. ANWAR:

7 Q. I see -- it was out of service April of
8 1979?

9 A. Yes, that's one. Oh, out four times.
10 Out.

11 Q. It was out of service in October of
12 1981?

13 MR. DEAN: Which well? 60 --

14 THE WITNESS: 602.

15 MR. DEAN: Okay.

16 BY MR. ANWAR:

17 Q. You agree with that?

18 A. Yes, yes -- well, no, it says out.
19 Again, these records are directly from either the
20 water utility at Camp Lejeune or the well driller
21 or whatever. So it says out. It does not say out
22 of service. I don't know if that means -- if that
23 means it was just out on that date or whatever, but
24 the rest of them say out of service.

25 Q. Okay. It was -- it says out of service

1 on October 1981, correct?

2 A. Yes.

3 Q. So there's an October 1981 that says,
4 quote, out, and then the following entry on the
5 table is October 1981, out of service, right?

6 A. Yes, to me indicates we had, at least
7 on that one, a multiple record or two different
8 sources of records.

9 Q. And then November 30th, 1984, it was
10 out of service as well, right?

11 A. Yes.

12 Q. So it was out of service at least three
13 times, correct?

14 A. Yes.

15 Q. And then as of November 30th, 1984, it
16 was permanently closed or terminated, right?

17 A. Well, service was terminated and then
18 abandonment would be in '94, permanently closed.

19 Q. What -- what do you understand the
20 distinction to be between service terminated and
21 abandoned?

22 A. Service terminated would indicate they
23 just stopped using it, but it might still be
24 available for emergency purposes, whereas,
25 abandonment would mean that they would, I would

1 say, pull the well screen out, pull the pump out,
2 and maybe they seal it up with bentonite, concrete,
3 the hole up.

4 Q. Okay.

5 A. That's the difference. There's an
6 example for -- at Tarawa Terrace for TT23 that --
7 it says it was out of service, but, in fact, we
8 have records that show during April of '85 they
9 actually used it because they were short of water,
10 okay? So unless it's abandoned, the well casing
11 pulled and then concrete up -- that's what service
12 terminated means to me, is that it's not being
13 used.

14 Q. Okay. Based on the information in the
15 table, which I assume comes from the available
16 data, HP602 wasn't used after November 30th, 1984,
17 right?

18 A. That's what that indicates.

19 Q. Okay.

20 A. We have no -- no data between -- or
21 there's -- yeah, no data listed in the table
22 between -- after November 30th, 1984 and June 1994.
23 So just looking at those two pieces of data, it's
24 terminated in '84 and then abandoned in '94.
25 There's no indication on here as to whether it was

1 used for emergency purposes or other things like
2 that.

3 Q. Okay.

4 A. Which is always a possibility with a
5 well that's not abandoned.

6 Q. Turning the page back to S16 -- excuse
7 me, S126. Looking at the table on HP608.

8 A. Yes. Okay.

9 MR. DEAN: S?

10 THE WITNESS: 26. 1.26.

11 MR. DEAN: I guess I don't have that
12 one.

13 THE WITNESS: Is this Supplement 1?

14 BY MR. ANWAR:

15 Q. You'd agree that ATSDA -- ATSDR
16 determined capacity of HP608 ranged from 115 GPM to
17 230 GPM?

18 A. Yes.

19 Q. And as we discussed a few moments ago,
20 compared to 60 -- HP602 --

21 A. Wait. Hold on just a second. It
22 continues on page S127. It's got a capacity of 226
23 on 1983 -- March 21st, 1984.

24 Q. I see that. So my question was, do you
25 agree that the range for -- ATSDR determined the

1 capacity of HP608 to be in the range of 115 GPM on
2 the low end and 230 GPM on the high end?

3 A. Yes.

4 Q. And --

5 A. I just wanted to make sure we had the
6 full table in front of us.

7 Q. No, I appreciate that. Compared to --
8 and we discussed a moment ago, and you're welcome
9 to turn back to look if you would like, but for
10 HP602 the range was 30 GPM to 154 GPM?

11 A. Yeah, that's correct.

12 Q. Okay. You agree that the table on --
13 for HP608 on page S127 shows that service was
14 terminated for HP608 on December 6, 1984, correct?

15 A. Yes, that's what it states.

16 Q. Okay. I would like to turn back to
17 Chapter C.

18 A. Chapter C. Okay.

19 Q. For the Hadnot Point/Holcomb Boulevard
20 analysis.

21 A. Yes. Okay. Chapter C.

22 Q. If I could direct you to page 108.

23 A. 108. Okay.

24 Q. Page C108, there's a Table C12 on it,
25 right?

1 A. Yes.

2 Q. Okay. So there are three entries
3 there, November 19, 1985, where benzene was
4 detected at 2500 micrograms per liter, right?

5 A. Yes.

6 Q. And then there's an entry December 10,
7 1985 where benzene was detected, 38 micrograms per
8 liter, right?

9 A. Yes.

10 Q. And then there is an entry just below
11 it, December 18, 1985, where benzene was detected,
12 one microgram per liter, right?

13 A. That's correct.

14 Q. Okay. Outside of those three entries
15 in November 1985 and December 1985, according to
16 this table, benzene was never detected above the
17 detection limit at the Hadnot Point water treatment
18 plant, right?

19 MR. DEAN: Object to the form.

20 THE WITNESS: Based on the sample data?
21 We're talking about the data in this table?

22 BY MR. ANWAR:

23 Q. Yeah.

24 A. With the exception of those three
25 readings that you cited, everything else was below

1 the detection limit.

2 Q. And just for the record, the -- we're
3 looking at Table C12. It's entitled "summary of
4 analyses for benzene, toluene, ethylbenzene and
5 total xylene in water samples collected at the
6 Hadnot Point water treatment plant at Camp
7 Lejeune", right?

8 A. Yes.

9 Q. Okay. So these are samples collected
10 at the Hadnot Point water treatment plant?

11 A. Right.

12 Q. Okay. And so a moment ago -- so for --
13 still focusing on C12 on -- Table C12 on
14 November 19, 1985, December 10, 1985, and
15 December 1985. Do you see that?

16 A. Yes.

17 Q. A moment ago we looked at tables with
18 the operating and pumping histories for HP602 and
19 HP608. Do you recall that?

20 A. Yes.

21 Q. So at the time of these three
22 detections for benzene, HP602 and HP608 were shut
23 down, right?

24 MR. DEAN: Object to the form.

25 THE WITNESS: I need to -- let's see.

1 Supplement 1, I'm guessing, yeah.

2 BY MR. ANWAR:

3 Q. Yeah, and if you want to --

4 A. Share the dates.

5 Q. -- go look over it, it was -- the 608
6 is on S126 and 27.

7 A. Okay. November 19th, '85.
8 November 19th, '85.

9 Q. HP608 --

10 A. Yes, yes, it was not, according to this
11 table, not operating, not in service.

12 Q. Yeah. And according to the table, it
13 was terminated in December, December 6th, 1984,
14 right?

15 A. Right.

16 Q. So almost -- it had been shut down for
17 almost a year --

18 A. Right.

19 Q. -- by the time the benzene was
20 detected --

21 A. Uh-huh.

22 Q. -- at the Hadnot Point water treatment
23 plant, right?

24 A. That's correct.

25 Q. Okay. Then 602, which is page 17,

1 S117.

2 A. Okay. I'm there.

3 Q. And we discussed this service was
4 terminated November 30th, 1984?

5 A. Yes.

6 Q. And it, likewise, had been shut down
7 almost a year by the time benzene was detected at
8 -- above detection limits at the --

9 A. Right.

10 Q. Or strike that.

11 It too -- the HP602 was -- also had
12 been shut down in November 30th, 1984, which was
13 about a year after benzene was detected at the
14 Hadnot Point water treatment plant, correct?

15 A. No, we've got '85 at the water
16 treatment plant. Is that what you're speaking
17 with, the benzene detections at the water treatment
18 plant?

19 Q. Correct.

20 A. That was in November '85 and it says
21 service terminated November 30, 1984.

22 Q. So almost a year had passed, right?

23 A. Yes.

24 Q. Okay. Would you agree that -- well,
25 strike that. Let me ask it this way. Residual

1 benzene from HP602 or HP608 used -- before
2 December 1984 was not the source of benzene in the
3 November and December 1985 samples we just looked
4 at, right?

5 MR. DEAN: Object to the form.

6 THE WITNESS: Again, this well says
7 service terminated. There's always the possibility
8 that they were operated and not recorded as
9 operated. I'm saying we observed at that Tarawa
10 Terrace, but -- and for the 2500 part per billion,
11 if you go to the Chapter C report, it might be in
12 this report also, we noted that the base chemist,
13 Elizabeth Betz, noted on that one that it was not
14 representative, okay? She did not say -- the
15 samples don't say that that's not a valid sample.
16 It said it was just not representative.

17 And we actually had a phone interview
18 with her and there's some documentation, with
19 Elizabeth Betz, to ask her did that mean that
20 sample was, you know, not valid and all of that. I
21 asked the question and she answered to me that, no,
22 she just meant that benzene sample -- especially
23 benzene samples would go up and down, up and down
24 until there was no regularity to the
25 concentrations.

1 BY MR. ANWAR:

2 Q. Well, in that conversation, was she
3 referring to the 2500 micrograms per liter?

4 A. I specifically asked her about that,
5 yes.

6 Q. And your understanding is -- from her
7 is that that sample from Hadnot Point water
8 treatment plant was not representative?

9 A. Yes, but I asked her -- that's marked
10 on the JTC lab reports. It's not -- and it's also
11 marked in our Chapter C.

12 Q. Sure.

13 A. Just to be clear. And I asked her what
14 was meant or what was her understanding of not
15 representative, and she said that -- and it's
16 recorded in the notes or meeting notes that we had
17 with her, phone conference, that she meant that
18 there was just -- the benzene sampling data would
19 go up and down, up and down by a large amount, and
20 so that's why it was not representative. She did
21 not say -- I asked her and she said she -- because
22 I asked if she meant that she would consider that
23 sample or, you know, or it was an erroneous sample,
24 and she definitely said, no, she just -- her
25 meaning was that it was -- the sampling data went

1 high and low, high and low.

2 Q. As you sit here today, you don't have
3 any reason to believe that the residual -- residual
4 benzene from HP602 or HP608 used before December
5 1984 was the source of benzene samples in November,
6 December 1985?

7 A. We really did not do a residual
8 analysis and, as you know, benzene is a floater.
9 It floats on top of water, so like salad dressing
10 with oil and vinegar. When you shake it up, maybe
11 stir it up, and then it separates out. So we
12 really did not do a residual analysis to see you
13 know, that specificity.

14 Q. But you don't have any definitive data
15 demonstrating that it was residual benzene from
16 HP602 or HP608 used before December 1984 that was
17 the source of this November, December 1985 benzene
18 samples?

19 A. Well, we've got our reconstructed
20 values at the water treatment plant.

21 Q. Well, and we don't need to look at
22 those.

23 A. Okay.

24 Q. I'm just talking in terms of the
25 real-world data, not in terms of the model right

1 now.

2 A. Okay. So again, ask your question
3 again.

4 Q. Just some terms of real-world data, you
5 don't -- there isn't any real-world data available
6 or that exists demonstrating that HP602 -- residual
7 benzene from HP602 or HP 608 used before
8 December 1984, which is when those two wells
9 closed, was the source of the
10 November/December 1985 measurements in the Hadnot
11 Point water treatment plant?

12 A. I do not have data for those wells
13 after they went out of service.

14 Q. Now, Tarawa Terrace, if I remember
15 correctly, ATSDR didn't use nondetects in the
16 geometric bias; is that right?

17 A. What's published in the published
18 title, yes, that's correct, we did not ignore the
19 data. They're published in the table, but when we
20 went to compute the geometric bias, we did not
21 include the nondetects because there's a whole area
22 of analysis about nondetects value -- what value
23 should you include or what value should you assign
24 or not assign and things of that nature.

25 Q. And in the published data you didn't --

1 ATSDR didn't use nondetects in the geometric bias,
2 which was used to assess calibration, right?

3 A. That is correct.

4 Q. Okay.

5 A. But we did publish it in the tables
6 accompanying -- accompanying that, okay, for both
7 the wells and -- supply wells and the treatment
8 plant.

9 Q. And as I understand it, from the very
10 beginning of our conversation today, it sounds like
11 you've done some additional work with respect to
12 geometric mean -- or geometric bias?

13 A. Yes.

14 Q. Okay. And was that only for Tarawa
15 Terrace?

16 A. It was for Tarawa Terrace and I'd have
17 to look at my notes. I might have done it for the
18 Hadnot Point water treatment plant.

19 Q. That would be reflected in your notes?

20 A. Yes.

21 Q. And do you intend to offer that opinion
22 if called to testify at trial?

23 A. That we -- that I reassessed the
24 computation?

25 Q. Yes.

1 A. Yes. Well, I mean, I will defer to the
2 attorneys on that, but I have notes that I'll turn
3 over to the attorneys.

4 Q. Okay. How --

5 MR. DEAN: Well, I mean, you should
6 answer his question fully because you can update
7 and amend your opinions pursuant to the rules in
8 the deposition if he asked. So if you've completed
9 your answer, fine. If you didn't, finish answering
10 his question.

11 THE WITNESS: No. I mean, I looked
12 again, as we discussed earlier today, after reading
13 Dr. Konikow's report, and he discussed the issue of
14 using duplicate samples or triplicate samples
15 within the same day or same month when the model
16 results only provide you one value per month. So
17 then I went back and recomputed using that
18 approach. So if we had two samples in a month,
19 then I would take an average. If you had three, I
20 would take an average, so I would compare one to
21 one.

22 Q. Okay. I have to find my place again.
23 Okay. How did ATSDR assess calibration of the
24 Hadnot Point mixing model for benzene with only --
25 or primarily nondetect data points?

1 A. Let me get to Chapter C and in table --
2 on Table A18 on page A62, we've got supply well.

3 Q. Is this on Chapter A or Chapter --

4 A. Chapter A. I'm on Chapter A, yes.
5 Chapter A of Hadnot Point.

6 Q. Okay. What -- what page were you
7 looking at?

8 A. I was on page A62. Okay. I misspoke.
9 That was the water treatment plant, okay? We had
10 measured data and then we had reconstructed data.
11 So I may have computed a geometric mean just, like,
12 on scratch paper, but I did not publish it as part
13 of the Chapter A for Hadnot Point/Holcomb Boulevard
14 report.

15 Q. Why did you treat that differently than
16 for Tarawa Terrace?

17 A. I really don't -- don't know. I know
18 we were under a timeline crunch to get it out and
19 it just may have been that it was not -- that I
20 looked at -- I just looked at visually the values,
21 reconstructed versus measured, and said, you know,
22 that was, you know, provided a good fit. And also
23 looked at the wells on page -- well, they're graphs
24 and stuff like that, but also there's a table
25 earlier on. Somewhere there's a table. And just

1 said that I was satisfied with -- with the -- with
2 the fit or the goodness of fit of the calibrated
3 results with the available water treatment plant
4 data.

5 It was also -- with Tarawa Terrace we
6 had just PCE, okay, one constituent. Whereas here
7 we had multiple constituents and I may have -- I
8 said, well, maybe we need to look into each one
9 individually or something like that. It was a
10 little more complex computation, and so it did not
11 end up in -- in the published report.

12 Q. Would you agree that not assessing
13 geometric bias affects uncertainty and reliability
14 for the Hadnot Point model?

15 A. Not necessarily because, again,
16 geometric bias just gives me an estimate; is the
17 model way over or way under or it's in the
18 ballpark, okay? And again, I'm looking at the
19 plot. A graphic is just as good as a geometric
20 bias. A geometric bias is putting a quantitative
21 estimate on a graphic, okay? Had this graphic, and
22 so it was just a computation that was not done for
23 this -- this analysis. You can go back and -- and
24 do it. I mean, as I said, I've got my notes.

25 Q. Okay. If you could turn back to

1 Chapter C on page C106.

2 A. 106?

3 Q. Yeah.

4 A. 106. Okay. I've got it.

5 Q. On C106 there's a Table C11, right?

6 A. Yes.

7 Q. It states, "summary analyses for PCE,
8 TCE, 1-1-DCE, trans-1-2-DCE, 1-2-DCE" -- it says,
9 "1-2-DCE, total 1-2-DCE, and vinyl chloride in
10 water samples collected at the Hadnot Point water
11 treatment plant, Camp Lejeune", correct?

12 A. Yes.

13 Q. Okay. I just wanted to ask you a few
14 questions about this.

15 A. Sure.

16 Q. You'd agree that this table summarizes
17 measured PCE and degradation product observations
18 at the Hadnot Point water treatment plant?

19 A. Yes.

20 Q. You'd agree that vinyl chloride was
21 never detected above the reporting limit at Hadnot
22 Point water treatment plant?

23 A. There's -- on February '85 the value --
24 estimated value of 2.9.

25 Q. Where are you looking? February --

1 A. C11, February 5th, 1985 all the way
2 across the last column. It says 2.9J.

3 Q. Okay. Aside from that one time, would
4 you agree that vinyl chloride was not detected
5 above the detection limit?

6 A. Let me make sure this goes -- is this
7 the same -- Table C10, C11. You're just talking
8 about Table C11, right?

9 Q. Correct.

10 A. Yes, that would be --

11 Q. You would agree that aside from that --
12 that one time in -- on February 5th, 1985, that
13 vinyl chloride was never detected above the
14 detection limit?

15 A. Yes.

16 Q. And this is for that Hadnot Point water
17 treatment plant, right?

18 A. That's correct.

19 Q. Okay. And then you would agree that
20 DCE was rarely detected above the detection limit
21 at the Hadnot Point water treatment plant?

22 MR. DEAN: Object to the form.

23 THE WITNESS: No, where there's a
24 trans-DCE, 1-2-DCE on February 5th, again, 1985, of
25 150 micrograms per liter.

1 BY MR. ANWAR:

2 Q. So that's that one time?

3 A. Yes.

4 Q. Would you agree, aside from that one
5 time, that DCE was not detected above the reporting
6 limit at the Hadnot Point water treatment plant?

7 MR. DEAN: Object to the form.

8 THE WITNESS: Yes.

9 BY MR. ANWAR:

10 Q. Okay. Let -- jumping around. Let's
11 turn back to Chapter A for Hadnot Point/Holcomb
12 Boulevard.

13 A. Okay. Okay.

14 Q. I would like to direct your attention
15 to A46.

16 A. Page A46?

17 Q. Correct.

18 A. Okay.

19 Q. There are a series of graphs there
20 entitled Figure A18, correct?

21 A. A18, yes.

22 Q. And A18 is titled "reconstructed or
23 simulated and measured concentrations of TCE at
24 selected water supply wells within the Hadnot Point
25 industrial area." Did I read that correct?

1 A. Yes.

2 Q. Okay. And the wells reflected on these
3 graphs are HP602, HP608, HP634, and then there's
4 well HP601 and, slash, HP660, correct?

5 A. That is correct.

6 Q. Would you agree that these -- this
7 figure shows calibrated model values at HP well
8 601, 602, 608 and 634?

9 A. They show the -- yes, the red line is
10 the simulated values.

11 Q. Okay.

12 A. Or reconstructed values, and the black
13 dots are the measured.

14 Q. So the -- for instance, at HP602 there
15 are one, two, three, four, five, six measured
16 values reflected on the graph, right?

17 A. Yes.

18 Q. For HP601 it looks like there are three
19 measured values on the graph, right?

20 A. Yes, they are measured for HP660, which
21 was the replacement well.

22 Q. For 601, right?

23 A. Yes.

24 Q. For HP608, it looks like there are four
25 values reflected on the graph?

1 A. Yes.

2 Q. And for HP634 it looks like there is
3 one value reflected on the graph?

4 A. Yes.

5 Q. Those are the measured values we're
6 talking about, correct?

7 A. That is correct.

8 Q. And then the -- that red -- the red
9 line is what the model is simulating as estimated
10 concentrations?

11 A. Yes, that's correct.

12 Q. These graphs show some measured values,
13 but they show none of the nondetect values,
14 correct?

15 A. That's correct.

16 Q. And you would agree that if we turn to
17 -- you might keep this page open --

18 A. Okay.

19 Q. -- but also turn to Chapter C, C95.

20 A. Right. C95?

21 Q. Correct.

22 A. Okay. I'm there. Table C7.

23 Q. Yes.

24 A. Okay.

25 Q. C7, "summary of analyses, PCE, TCE, DCE

1 and vinyl chloride for water samples collected at
2 Hadnot Point water treatment plant", right?

3 A. Right.

4 Q. Okay. For HP634 there, there are four
5 values below the nondetect limit, right -- or
6 excuse me, there are four -- four nondetects?

7 A. In Table C9 -- I mean, on Table C7?

8 Q. Yes.

9 A. For 634 there's -- yes, that's correct.

10 Q. And if you go back and look at A46,
11 there's one measured value reflected there, right?

12 A. That's correct.

13 Q. But those -- those four nondetects are
14 not reflected?

15 A. That's correct. The issue with trying
16 to graphically represent nondetects gets back to
17 what value are you going to use. If we use the
18 detection limit, then someone can argue, well, you
19 don't know that definitively because it was
20 nondetect. If you want to use half the detection
21 limit, again, that's just an estimate. There are
22 some other complex methods where people -- Dennis
23 Helsel and others who have worked in the nondetect
24 area, that you can estimate and quantify the
25 nondetects, but for our purposes we used the

1 graphics in the reports as -- and companions to the
2 tables. So if someone wanted to see what all the
3 values were, they could go to the -- to the table
4 and see that we had nondetects and we also had
5 above detection limits.

6 Q. Okay. Let's -- let's look at -- and
7 let me mark it. Let's switch gears a little bit.

8 A. Okay.

9 Q. I'm going to hand you what I'm marking
10 as Exhibit 19.

11 (DFT. EXHIBIT 19, Analyses and
12 Historical Reconstruction of Groundwater Flow,
13 Contaminant Fate and Transport, and Distribution of
14 Drinking Water Within the Service Areas of the
15 Hadnot Point and Holcomb Boulevard Water Treatment
16 Plants and Vicinities, U.S. Marine Corps Base Camp
17 Lejeune, North Carolina Chapter A-Supplement 6,
18 Characterization and Simulation of Fate and
19 Transport of Selected Volatile Organic Compounds in
20 the vicinities of the Hadnot Point Industrial Area
21 and Landfill, was marked for identification.)

22 THE WITNESS: Okay.

23 BY MR. ANWAR:

24 Q. Here you go.

25 A. Supplement 6. Okay.

1 Q. Exhibit 19 is a Hadnot Point/Holcomb
2 Boulevard Chapter A-Supplement 6, right?

3 A. That is correct.

4 Q. Okay. And it's titled
5 "characterization and simulation of fate and
6 transport of selected volatile organic compounds in
7 the vicinities of the Hadnot Point industrial area
8 and landfill", right?

9 A. That is correct.

10 Q. Okay. Can I have you turn to page
11 S645?

12 A. Okay. 645. Okay.

13 Q. And S645 includes a discussion of --
14 it's entitled discussion and limitations, correct?

15 A. That is correct.

16 Q. And that's of the Hadnot Point/Holcomb
17 Boulevard analysis and model, correct?

18 A. Yes, yes.

19 Q. Okay. Looking over on the right-hand
20 side, second paragraph, it starts, "for contaminant
21 fate and transport modeling reported herein,
22 however, insufficient water quality data existed to
23 conduct a statistical analysis for assessment of
24 model calibration fit. In addition, specific data
25 pertinent to the timing of initial deposition of

1 contaminants to the ground or subsurface
2 chronologies of waste disposal operations such as
3 dates and times when contaminants were deposited in
4 the Hadnot Point landfill or descriptions of the
5 temporal variation of contaminant concentrations in
6 the subsurface generally are not available."

7 Did I read that all correctly?

8 A. Yes.

9 Q. Okay. And then it goes on,
10 "determining these types of source identification
11 and characterization data became part of the
12 historical reconstruction, whereby the contaminant
13 fate and transport model was used to test source
14 locations, varying concentrations, and beginning
15 and ending dates for leakage and migration of
16 source contaminants to the subsurface and the
17 underlying groundwater flow system." Did I read
18 that correctly?

19 A. That's correct.

20 Q. Okay. So then the next starts,
21 "conducting a robust uncertainty analysis using
22 Monte Carlo analysis requires simulating thousands
23 of realizations. When using available
24 computational equipment, the Hadnot Point
25 industrial area and the Hadnot Point landfill

1 models have a simulation time of about six to
2 eight hours for each simulation. The lengthy
3 simulation times and the substantial data
4 limitations therefore make a comprehensive
5 uncertainty analysis computationally prohibitive
6 based on available resources and time limitations.
7 Thus, the ranges of values presented in the
8 sensitivity analysis section of this report assess
9 a limited number of input and output model
10 parameters. The results, in other words, range of
11 concentration presented in the sensitivity analysis
12 reported herein, should not be considered or
13 interpreted as the results of a robust and
14 comprehensive uncertainty analysis, but do provide
15 insight into parameter sensitivity and uncertainty
16 in a qualitative sense."

17 Did I read that all correctly?

18 A. Yes.

19 Q. Based on the two paragraphs we just
20 read together, you would agree that ATSDR did not
21 conduct a statistical analysis to assess model
22 calibration and fit at Hadnot Point because there
23 wasn't sufficient water quality data, right?

24 MR. DEAN: Object to the form of the
25 question and misstates and mischaracterizes the

1 document.

2 THE WITNESS: I'm just seeing where we
3 said that on this -- I'm sure I'm --

4 MR. BELL: Are y'all allowed to have
5 candy bars?

6 MR. ANWAR: Sure.

7 MR. BELL: I know it's late in the day.
8 Someone said, well, don't give him anymore.

9 THE WITNESS: Yeah, it's -- as it
10 states in the report, insufficient water quality
11 data and the statistical analysis for assessment of
12 model calibration is not -- was not conducted,
13 okay? I believe they were referring to -- this was
14 the -- this was the groundwater flow -- the
15 contaminant fate and transport groundwater model,
16 not necessarily the mixing model and -- at the
17 Hadnot Point water treatment plant, okay? That may
18 have been able to have been computed.

19 BY MR. ANWAR:

20 Q. But you agree statistical analysis to
21 assess model calibration fit wasn't conducted
22 because -- because there was insufficient water
23 quality data, right?

24 A. Yes, that's what it says.

25 Q. Okay. And in this paragraph, when it's

1 referencing water quality data, you would agree
2 that means measurements of contaminant
3 concentrations, right?

4 MR. DEAN: Object to the form.

5 THE WITNESS: That's what I would
6 interpret it to mean.

7 BY MR. ANWAR:

8 Q. Okay. So earlier, just, I think, a few
9 minutes ago, we talked about geometric bias at the
10 Hadnot Point mixing model?

11 A. Right.

12 Q. Would you agree this says one wasn't
13 done?

14 A. Again, I'm looking at -- this is
15 strictly a groundwater contaminant fate and
16 transport. It would have been done or could have
17 been done in the summary chapter, Chapter A, but I
18 do not see it there, so it was not conducted.

19 Q. One was --

20 A. It was not computed. Let me just -- it
21 was not computed like it was computed for Tarawa
22 Terrace.

23 Q. One wasn't computed for the fate and
24 transport model for Hadnot Point, correct?

25 A. One was not computed for the water

1 supply wells at Tarawa Terrace -- let's go back.
2 We computed geometric bias for the water supply
3 wells and then we also computed a geometric bias
4 for the water treatment plant, okay? So Supplement
5 6 is strictly the groundwater flow model, so there
6 was not one conducted -- computed for the supply
7 wells at Hadnot Point and Holcomb Boulevard.

8 Q. Okay. I just want to make sure. There
9 was not one computed for the supply wells, correct?

10 A. That is correct.

11 Q. And would you agree there was not one
12 conducted for fate and transport?

13 MR. DEAN: Object to the form.

14 THE WITNESS: That would -- that would
15 be the supply wells.

16 BY MR. ANWAR:

17 Q. Okay. I've got you.

18 A. Okay. The fate and transport model,
19 you would pull out the concentrations at the well
20 locations.

21 Q. Okay. That's what I wanted to make
22 sure I understood. Thank you.

23 And so now kind of looking back at the
24 paragraphs we just read.

25 A. Okay. Hold on. Go back there.

1 MR. DEAN: Page 45, 645. I think
2 that's where...

3 THE WITNESS: Yeah, I'm there.

4 BY MR. ANWAR:

5 Q. It says, you'd agree, "that specific
6 data pertinent to the timing of initial deposition
7 of contaminants to the ground or subsurface
8 chronologies of waste disposal operations such as
9 dates and times when contaminants were deposited in
10 the Hadnot Point landfill or descriptions of the
11 temporal variation of contaminant concentrations in
12 the subsurface generally were not available at
13 Hadnot Point", right?

14 A. That's what it says, yes.

15 Q. Okay. And you agree that historical --
16 quote, historical reconstruction, as used in the
17 paragraphs, had to include testing source
18 locations, varying concentrations, and beginning
19 and ending dates for leakage and migration of
20 source contaminants to the subsurface and the
21 underlying groundwater flow system?

22 A. That would be the calibration process.

23 Q. You'd agree that a comprehensive
24 uncertainty analysis wasn't done at Hadnot Point
25 because, as it states in the paragraph, "lengthy

1 simulation times and substantial data limitations
2 were computationally prohibited" --

3 A. Yes.

4 Q. "Prohibitive."

5 A. Yes, that's what it says.

6 Q. ATSDR did a sensitivity analysis, but
7 it said, results should not be considered or
8 interpreted as results of a robust and
9 comprehensive uncertainty analysis, correct?

10 A. Yes.

11 MR. DEAN: Object to the form.

12 BY MR. ANWAR:

13 Q. And your answer was yes, right?

14 A. Yes, I'm confirming what -- you read it
15 from the report.

16 Q. It's the last sentence of the last
17 paragraph. So ATSDR did a sensitivity analysis,
18 but said its results should not be considered or
19 interpreted as the results of a robust and
20 comprehensive uncertainty analysis, right?

21 MR. DEAN: We can stipulate you read
22 that sentence correctly.

23 BY MR. ANWAR:

24 Q. And you agree with that, right?

25 MR. DEAN: Object to the form.

1 THE WITNESS: It can be considered
2 qualitative. That's what we say in here, okay? We
3 did conduct sensitivity analyses.

4 BY MR. ANWAR:

5 Q. Let's jump ahead -- or let's jump to --
6 back to Supplement 6 -- or we are on Supplement 6.

7 A. Yes.

8 Q. So let's turn to page 44, S6.44.

9 A. 44, okay.

10 Q. So the page before.

11 A. Okay.

12 Q. On page S6 there is a Figure S6.23,
13 correct?

14 A. Yes.

15 Q. And the figure is titled "variations in
16 reconstructed simulated finished water
17 concentrations of TCE derived using a Latin
18 hypercube sampling methodology on water-supply well
19 monthly operational schedules for Hadnot
20 Point/Holcomb Boulevard study area", correct?

21 A. Yes.

22 Q. Okay. This is the -- the -- the figure
23 for the uncertainty analysis on the Hadnot
24 Point/Holcomb Boulevard model, right?

25 A. Yes, at the water treatment plant.

1 Q. Okay. At the water treatment plant.

2 And agree that the results of this
3 uncertainty analysis at the Hadnot Point water
4 treatment plant where reconstructed monthly well
5 operations -- okay. Let me ask that again.

6 You agree that the results of the
7 uncertainty analysis here were -- for reconstructed
8 monthly well operations schedules were varied?

9 A. Yes.

10 Q. And this -- this reflects the -- the
11 water-supply well monthly operational schedules,
12 correct?

13 A. Yes.

14 Q. It's an uncertainty analysis about the
15 water-supply well monthly operational schedules,
16 correct?

17 A. That is correct.

18 Q. Okay. And the uncertainty analysis
19 shows -- the uncertainty analysis was varied,
20 right?

21 MR. DEAN: Object to the form.

22 THE WITNESS: I'm not sure I understand
23 what you mean by the uncertainty analyses was
24 varied.

25 BY MR. ANWAR:

1 Q. The results of the uncertainty analysis
2 were varied, correct?

3 MR. DEAN: Object to the form.

4 THE WITNESS: The results were not
5 varied.

6 BY MR. ANWAR:

7 Q. I thought a moment ago you agreed they
8 were varied.

9 MR. DEAN: Object to the form.

10 THE WITNESS: You asked me about the
11 water-supply wells.

12 BY MR. ANWAR:

13 Q. Okay.

14 A. That's the parameter that was varied.

15 Q. Okay. Understood. Ah, yeah. And
16 you'd agree -- so let me -- just so the record is
17 clean, agree this -- the -- this uncertainty
18 analysis at Hadnot Point is where reconstructed
19 monthly well operations schedules were varied,
20 correct?

21 A. Yes.

22 Q. Okay. Thank you. And you agree that
23 the results of this uncertainty analysis suggests
24 that changes in pumping schedules produce very
25 different modeled monthly mean contaminant

1 concentrations, right?

2 MR. DEAN: Object to the form.

3 THE WITNESS: There's variation from
4 the mean to the high or low.

5 BY MR. ANWAR:

6 Q. There's significant variation, right?

7 MR. DEAN: Object to the form.

8 THE WITNESS: I don't know if I would
9 call it significant. If you compare it to the data
10 spread, it's not -- it's greater than at Tarawa
11 Terrace.

12 BY MR. ANWAR:

13 Q. You agree it is greater than Tarawa
14 Terrace, right?

15 A. Yes, but we still considered it to meet
16 our modeling objectives.

17 Q. You'd agree this was a Monte Carlo
18 simulation like in Tarawa Terrace, but unlike
19 Tarawa Terrace, only the one input parameter, well
20 pumping schedule, was varied, correct?

21 A. It was a Latin hypercube sampling,
22 which is a variant of Monte Carlo simulation when
23 Monte Carlo simulation becomes computationally
24 prohibitive. So it is a Monte Carlo, but it's
25 Latin hypercube sampling.

1 Q. A moment ago we were talking about the
2 degree of variation. Would you agree that the
3 variation is hundreds of micrograms per liter?

4 A. Once -- you're talking about the
5 reconstructed results or the sampling data?

6 Q. The -- the reconstructed results.

7 A. Once HP651 kicks in, yes, after July --
8 I think June or July of '72.

9 Q. That's where you see the -- on the
10 figure, Figure S623, dot 23, it spike up, correct?

11 A. Yes.

12 Q. Now, looking at this Figure S6.23, you
13 would agree the gray line show all of the Monte
14 Carlo simulations drawn on the same chart?

15 MR. DEAN: Object to the form of the
16 question.

17 THE WITNESS: They -- they show all the
18 Latin hypercube sampling results on -- on this
19 graph.

20 BY MR. ANWAR:

21 Q. Why not show the 95 percent realization
22 balance like ATSDR did for Tarawa Terrace?

23 A. It was not -- with Latin hypercube you
24 -- you had -- in this case we used ten equal
25 subdivision or sampling points, okay? That's the

1 definition of Latin hypercube, is you have an equal
2 probability within each sampling domain, which we
3 had ten. And so it was just not possible to
4 compute a confidence limit, but -- using -- using
5 that approach.

6 Q. Okay.

7 A. But it did give us both a quantitative,
8 in terms of high/low, and qualitative feeling of
9 the model results at the water treatment plant.

10 Q. Got it. I think we are in the home
11 stretch, about 40 minutes left, probably 40, 45.
12 Why don't we take a quick five or five or ten. I
13 would like to take a look at my notes and --

14 A. Okay. Sure.

15 MR. ANWAR: Thank you.

16 THE VIDEOGRAPHER: Going off record.
17 The time is 5:10 p.m.

18 (A recess transpired.)

19 THE VIDEOGRAPHER: Okay. We are going
20 back on record. The time is 5:23 p.m.

21 BY MR. ANWAR:

22 Q. We are back on the record from a short
23 break. Mr. Maslia, are you okay to continue?

24 A. Yes, I am.

25 Q. Did you speak to your lawyers during

1 the break?

2 A. No, I did not.

3 Q. Okay. I may bounce around a little
4 bit. I wanted to ask you a few questions about
5 your rebuttal report, your opinions in your
6 rebuttal report. Dr. Spiliotopoulos pointed out,
7 for the Tarawa Terrace model, that the KD values
8 and the bulk density values for the calculation of
9 the retardation factor contained errors. Do you
10 recall that?

11 A. He pointed out that the bulk density
12 did.

13 Q. Okay. And my -- my understanding of
14 your opinions about that are essentially that you
15 don't dispute the error, but it doesn't, in your
16 opinion, change the analysis much; is that right?

17 A. It's not so much of an error. What was
18 used originally was the wet bulk density, and it
19 was pointed out to us in 2009, by one of the
20 experts on the Hadnot Point/Holcomb Boulevard panel
21 when we had sent the Tarawa Terrace report, that we
22 had a wet bulk density. So we went back and
23 changed that value and, of course, you've got to
24 understand is that in the contaminant fate and
25 transport equations, bulk density and distribution

1 coefficient are not included. What's included is
2 retardation factor, okay? And we originally had a
3 retardation factor of 2.93. So if we adjusted the
4 bulk density to drop down, that means we could
5 adjust KD up. They are compensating, okay, because
6 they are calibration -- KD is a calibration
7 parameter.

8 Q. Sure.

9 A. And that resulted in the exact same
10 retardation factor of 2.93, and it resulted in
11 identical to the decimal place concentrations that
12 we had published in the Chapter A report.

13 Q. Okay. And thank you for -- for
14 explaining that. The -- if I'm understanding your
15 testimony correctly, it's not so much that the --
16 the difference of opinion about bulk density or the
17 error, as Dr. Spiliotopoulos has described it,
18 doesn't exist; it's that it's offsetting such that
19 it doesn't impact the retardation factor?

20 A. That is correct.

21 Q. Okay.

22 A. Our retardation factor was consistent
23 -- it was identical to what it was in the published
24 report, okay, but it was also very consistent with
25 existing literature values as well for PCE in this

1 type of terrain.

2 Q. Now, the retardation factors -- excuse
3 me, the bulk density and the KD value used for
4 Hadnot Point and Holcomb Boulevard model or
5 analysis is different than the one for the Tarawa
6 Terrace model, is that --

7 A. I would like to just compare the two so
8 we're --

9 Q. Sure.

10 A. -- comparing apples to apples here. So
11 let get me to Hadnot Point. Okay. There's -- I'm
12 looking at page A41 for the Hadnot Point report.
13 Ah, here you go. So you asked about bulk density.

14 Q. Yeah, the -- let's start with bulk
15 density.

16 A. Well, yes, but, again, as I said, we
17 corrected the one that was in Chapter A once we
18 realized that was a wet bulk density. The
19 corrected value came very close to 46,700 grams per
20 cubic foot.

21 Q. Okay.

22 A. Which is what we used in the Hadnot
23 Point.

24 Q. But the values for the actual
25 calculation -- for the actual -- how you calculated

1 the retardation factor between Tarawa Terrace and
2 for Hadnot Point, can you direct me to the page
3 that you're looking?

4 A. Okay. I'm on page A41 of the Hadnot
5 Point/Holcomb Boulevard report.

6 Q. Sure.

7 A. And then also page A29 of the Tarawa
8 Terrace report.

9 Q. Okay. Okay. Let's come back to that.

10 A. Okay.

11 Q. I'm going to mark what is, I think,
12 Exhibit 20 now.

13 (DFT. EXHIBIT 20, letter dated February
14 21, 2007 from Morris Maslia to Dr. Leonard F.
15 Konikow Bates-stamped
16 CL_PLG-Expert_Konikow_0000000006 through
17 0000000021, was marked for identification.)
18 BY MR. ANWAR:

19 Q. Here you go. This -- the first page of
20 Exhibit 20 is dated February 21, 2007, correct?

21 A. Yes.

22 Q. And it is a letter from you to
23 Dr. Leonard Konikow enclosing feedback to comments
24 that Dr. Konikow had raised about the Tarawa
25 Terrace analysis, correct?

1 A. Yes, he was a peer-reviewer, external
2 peer-reviewer --

3 Q. Okay.

4 A. -- on that particular chapter for
5 Tarawa Terrace.

6 Q. Now, these -- these responses to
7 Dr. Konikow's concerns or what are identified as
8 major concerns were drafted by Bob Faye, correct?

9 A. Yes.

10 Q. Did you have a chance to review these
11 before they were sent out?

12 A. I -- I reviewed it. It's been a while
13 since I've seen these, but I did -- did review it.

14 Q. Would you have discussed the responses
15 with Bob Faye before they were sent back to
16 Dr. Konikow?

17 A. Not necessarily discussed it. If I had
18 an issue with the response, I may have talked to
19 him.

20 Q. Okay.

21 A. And asked him, but I typically -- my
22 approach was not to micromanage the modelers,
23 right? So since Bob Faye was the primary author on
24 Chapter F, I assume that's what this chapter is --
25 yes, then I would allow him to develop the

1 responses. And, of course, he was a subcontractor
2 to ATSDR through Eastern Research Group, so that's
3 -- that's who he would send the responses to and
4 they would provide me with a copy.

5 Q. Okay. So on -- let's call it the page
6 ending in Bates label 08.

7 A. Okay. Okay.

8 Q. Actually, let's go to 09.

9 A. Okay.

10 THE WITNESS: Do you need a copy? Do
11 you need a copy?

12 MR. DEAN: I have one.

13 THE WITNESS: Oh, okay. Okay.

14 BY MR. ANWAR:

15 Q. Number three, Dr. Konikow raised as a
16 major concern, "the reliability of the estimate of
17 the biodegradation rate constant based on the
18 assumption that concentration declines" -- excuse
19 me. Let me read that again.

20 Number three of Dr. Konikow's major
21 concerns reads, "the reliability of the estimate of
22 the biodegradation rate constant based on the
23 assumption that concentration declines observed at
24 one location over a period of several -- several
25 years can be explained solely by biodegradation."

1 Did I read that correctly?

2 A. Yes, you read that correctly.

3 Q. Okay. And it looks like Bob Faye's
4 response there was "the author never claimed that
5 the biodegradation rate computer using field data
6 was reliable or the sole reason for the observed
7 decline in PCE concentration." Did I read that
8 correctly?

9 A. Yes.

10 Q. Okay. Do -- do you agree with that
11 statement?

12 A. That's Mr. Faye's opinion as the person
13 who did the -- the model in response to
14 Dr. Konikow's question or comment, but, you know,
15 what is generally being said is that some of these
16 transport parameters, like biodegradation rate,
17 that's very limited field -- field data, and so,
18 you know, there could be any possibilities for the
19 decline in the concentration. And I think that's
20 what Dr. Konikow was raising as well.

21 Q. And the next sentence says, "rather,
22 the computed rate was presented as an approximate
23 value useful to begin model calibration." Did I
24 read that correctly?

25 A. Yes. And I would agree with that.

1 Q. So if you go on, the rest of it reads,
2 "well TT26 is located on a direct migration, slash,
3 advective pathway from the PCE source at ABC
4 One-Hour Cleaners." Did I read that correctly?

5 A. Yes.

6 Q. Do you agree with that?

7 A. Yes.

8 Q. Okay. And then it says, "to the extent
9 that migration of PCE mass towards and away from
10 supply well TT26 occurred at about equal rates
11 during 1985 to 1991, the computed degradation rate
12 of 0.00053 per day approximates a long-term average
13 degradation rate." Did I read that correctly?

14 A. Yes.

15 Q. It goes on to say, "on the other hand,
16 if a significant quantity of the PCE degraded in
17 the vicinity of supply well TT26 was replaced by
18 advection, then the degradation rate computed using
19 equation three is probably a minimum rate,"
20 correct?

21 A. Yes, that's what you read.

22 Q. Okay. And do you agree with that?

23 A. I agree with that concept, yes. He's
24 basically saying we had two data points at TT26 in
25 '85 and '91, and so that's what was used to compute

1 the initial -- to start model calibration.

2 Q. And then it goes on to say, "the report
3 does not state or indicate that the decline in PCE
4 mass at supply well TT23 is due entirely to
5 biodegradation rate -- biodegradation. Rather, the
6 report indicates that the computed first-order
7 degradation rate is an estimate used as a basis to
8 begin model calibration," correct?

9 A. Yes. It's important to understand that
10 the value that we ended up for the calibrated rate,
11 which is five times ten to the minus four per day,
12 0.0005, compares extremely favorably with the
13 values that Dr. Clement came up with in his model
14 for his paper.

15 Q. That who came up with?

16 A. Dr. Clement.

17 Q. Okay. And you're talking about the
18 Dover Air Force Base model?

19 A. Yes, yes, very similar lithology. We
20 did have a gravel zone in there, but, again, he
21 came up with -- I think it was somewhere around one
22 to four times ten to the minus four. I would have
23 to look at the paper and see.

24 Q. That's okay.

25 A. But that's, you know...

1 Q. I wanted to turn your attention to the
2 Bates page ending now in 15.

3 A. Yeah, could I just make sure I gave you
4 the right numbers?

5 Q. Sure.

6 A. Here we go. Okay. Here you go. The
7 estimated -- the field estimated apparent reaction
8 rates range from 3.5 to seven times ten to the
9 minus four per day for PCE, and we're smack dab in
10 the middle with five times ten to the minus four.

11 Q. Let's turn to the page ending in 15.

12 A. Okay.

13 Q. There is a comment about -- towards the
14 bottom of -- about mass loading. Starting page 59,
15 it says, "mass loading, disagree, see my comments
16 under major concerns item five. The reviewer seems
17 to assign a high degree of accuracy and credibility
18 to the PCE mass computation that is unwarranted."
19 Did I read that correctly?

20 A. Yes.

21 Q. And then it says, "as explained
22 previously, the computation of PCE mass was highly
23 interpretive and somewhat subjective process
24 frequently based on questionable data." Did I read
25 that correctly?

1 A. Yes.

2 Q. Do you agree with that?

3 A. Not necessarily. We had data from ABC
4 Dry Cleaners, PCE data, and we used a technique
5 that was published in Groundwater journal that's
6 documented in the Chapter E and the Chapter F -- F
7 report in -- the key fact takeaway, and I mentioned
8 this in -- I believe it was my expert report, is
9 that the mass computed using the field data and the
10 mass determined from the MT3DMS model were the same
11 order of magnitude, which gave us -- it's almost
12 another calibration check, okay?

13 Q. The comment goes on to say, "field data
14 applied to the PCE mass computation were limited
15 both spatially and vertically," right?

16 A. Right.

17 Q. And that's a true statement, right?

18 A. That is. They were limited, but they
19 were still field data available.

20 Q. And then, "the computation was
21 accomplished regardless of data limitations to
22 provide an estimate of a minimum mass loading rate
23 to begin model calibration." Did I read that
24 correctly?

25 A. Yes.

1 Q. Okay. Now, for the Tarawa Terrace
2 model, ATSDR assumed mass loading on January 1,
3 1953, correct?

4 A. That is correct.

5 Q. And I think, was it -- without pulling
6 up the report, was it 1300 -- or no, 1200?

7 A. That was the calibrated value, is 1200.
8 We started at 200. And again, that is a
9 calibration parameter that you're free to adjust
10 during the model calibration process. We're
11 adjusting, you know, conductivity. You're
12 adjusting reaction rate. You're adjusting a number
13 of parameters. And so it was adjusted and the best
14 fit value came up to, I believe, 1200 grams per
15 day.

16 Q. Okay. And I understand that DOJ's
17 expert has offered a -- well, let me -- let me ask
18 you this: You reviewed Dr. Spiliotopoulos's
19 report, correct?

20 A. Yes.

21 Q. Okay. And you saw that his opinion
22 that the -- the later start date for ABC Cleaners,
23 correct?

24 A. Right, correct.

25 Q. Of July 1954, correct?

1 A. That is correct.

2 Q. Okay. And in the ATSDR Tarawa Terrace
3 model, the start date was assumed to be January 1,
4 1953, correct?

5 A. That is correct.

6 Q. And on day one, the calibrated mass
7 loading rate is 1200 micrograms per liter, correct?

8 A. No, grams per day.

9 Q. Per day. I'm sorry.

10 A. Yeah, grams. The way it was input to
11 the model as a source loading rate, so it would be
12 grams per day.

13 Q. Thank you for that. It was assumed to
14 be a constant 1200 micrograms per day, correct?

15 A. The calibrated value.

16 Q. For Tarawa Terrace?

17 A. Yes.

18 Q. Okay. In the real world, if
19 contaminants on the surface were to start leaking,
20 would they immediately reach the aquifer?

21 A. They would within, in this case,
22 probably a couple of years.

23 Q. So in -- in -- for Tarawa Terrace it's
24 your opinion that whenever ABC Cleaners released
25 PCE into the -- onto the ground, it would have

1 taken a couple of years for it to reach the
2 aquifer?

3 A. To reach any of the supply wells
4 pumping. In other words, it would have gone
5 vertically horizontal and, of course, the -- say
6 TT26 is pumping, is putting tremendous gradient,
7 vertical gradient, down right near to the well, so
8 it would have fallen horizontal and then vertically
9 down into the well -- a well casing or a well
10 screen and been pulled -- pulled up. And the
11 assumption was, again, the engineering assumption,
12 that it started on January 1st, 1953 when ABC
13 Cleaners started operations.

14 Q. Okay. So you assumed the constant --
15 the calibrated constant mass loading rate on day
16 one, but you agree in the real world it may have
17 taken a couple of years for contaminants from ABC
18 Cleaner to actually get to the supply wells,
19 correct?

20 A. It may have, but we did not do -- you
21 would have to do an unsaturated zone modeling or
22 analysis to actually quantify that.

23 Q. Why did you-all decide to assume a
24 constant mass loading rate on day one?

25 A. Because if we did not assume a constant

1 value, that would be, to me, indicative that we
2 must have had some additional data to say that, you
3 know, it was a certain rate this day, a different
4 rate in another day, and so on. So we did not have
5 that information, so in keeping with accepted model
6 calibration practice, we assumed the constant rate
7 that we computed -- we computed initial, which was
8 a minimum value, and then through the calibration
9 process increased it using calibration to check
10 results for the available contaminant concentration
11 data at the wells.

12 (DFT. EXHIBIT 21, e-mail correspondence
13 Bates-stamped CLJA_Watermodeling_05-0000021184
14 through 0000021188, was marked for identification.)
15 BY MR. ANWAR:

16 Q. I'm handing you what I'm marking as
17 Exhibit 21.

18 A. Okay.

19 Q. I hope that's right, 21. We were just
20 talking about mass loading with respect to Tarawa
21 Terrace. I would like to shift gears to -- to sort
22 of mass loading with respect to Hadnot
23 Point/Holcomb Boulevard.

24 A. Okay.

25 Q. And this is an e-mail from Barbara

1 Anderson to you dated -- the first e-mail -- well,
2 I guess the chain, both of them, are dated
3 September 26th, 2011, correct?

4 A. It's September 26, 2011, yes.

5 Q. Okay. And this e-mail is discussing
6 mass loading of benzene, correct, or, I guess,
7 LNAPL, light non-aqueous phase liquid?

8 A. I believe this is discussing the LNAPL
9 that's dissolved because -- it says LNAPL on it, so
10 I'll leave it at that right now.

11 Q. The third paragraph states, "the first
12 scenario is a simple step function. The second
13 scenario incorporates some information we have
14 about the Hadnot Point fuel farm area and
15 conceptualizes the source strength LNAPL area as
16 increasing over time. In reality, the LNAPL
17 footprint grew and spread as the UST system leaks
18 and releases progressed. At some point in time the
19 LNAPL footprint grew to be the size that -- that GT
20 calculated from the free product data, 1988 to
21 1999, but it was not that size from the beginning
22 start date. This is shown in scenario two."

23 Did I read that correctly?

24 A. Yes.

25 Q. And do you agree with Barbara Anderson

1 that in reality the LNAPL footprint grew and spread
2 as the underground storage tank system leaks and
3 releases progressed?

4 A. Conceptually, yes, I would agree with
5 that.

6 Q. And scenario two shows a -- the leaks
7 and releases progressing over time, correct?

8 A. That is correct.

9 Q. Whereas, the scenario one is a step
10 function that shows immediate mass loading or
11 release right away, correct?

12 A. That is correct.

13 Q. And for the Hadnot Point/Holcomb
14 Boulevard model as it relates to LNAPL, ATSDR used
15 scenario one, correct?

16 A. I would have to go back and read -- the
17 LNAPL was rather complicated because we had the
18 folks at the multi-environmental simulations lab at
19 Georgia Tech looking at the volume and then the
20 movement within the saturated zone to the water
21 table. And then we had the other people, like
22 Barbara and Mr. Elliott Jones, who did the fate and
23 transport part, looking at it moving the water
24 table.

25 So I would have to go back and -- and

1 look at how each one characterized the mass loading
2 rate or the source -- source rate and -- but I know
3 Barbara was our data analyst, and I think the task
4 here was to look at two different
5 conceptualizations for how mass loading at the
6 Hadnot Point industrial area and fuel farm could
7 have occurred.

8 Q. Okay. And scenario two is more
9 realistic, right, in the real world?

10 MR. DEAN: Object to the form.

11 THE WITNESS: Again, that's -- I think
12 that's an data analysis engineering call as to what
13 it could be.

14 BY MR. ANWAR:

15 Q. Okay.

16 A. You know, where it's almost -- you'd
17 have to run a sensitivity analyses on here and see
18 which one provided you closer agreement.

19 Q. Okay. As you, Mr. Maslia, sit here
20 today, are you planning to amend or supplement your
21 expert report in the case?

22 A. Well, we mentioned about the geometric
23 bias. I don't know if that amends my report or --
24 and we included that extra paper reference --

25 Q. Okay.

1 A. -- from Clement, so that definitely, I
2 think, should be in there. And, you know, I don't
3 have any intentions of any major changes based on
4 additional modeling that I'm -- I'm doing. I'm not
5 planning on doing any.

6 Q. When you say no intent on major
7 changes --

8 A. Right.

9 Q. -- are you planning to -- and when I
10 say supplemental disclosure, are you planning to
11 provide, like, another written document with
12 additional or updated opinions --

13 MR. DEAN: So --

14 BY MR. ANWAR:

15 Q. -- major or minor?

16 MR. DEAN: Let me -- let me take over
17 here and answer for the witness, if it's okay. And
18 that is, as you know, DOJ recently belatedly
19 produced a bunch of photos from Dr. Hennet without
20 any sort of a disclosure of what it is. So we
21 can't respond to our experts until we sort of know
22 some explanation as to what that is. So that could
23 potentially, depending on Mr. Hennet's deposition,
24 trigger something from him, but he nor any of our
25 experts at this time can answer your question about

1 additional thoughts or opinions or whatever. And,
2 of course, there's been some correspondence about
3 this. Mr. Bain has sent a letter and we've
4 responded. So we just -- he's reserving that right
5 as to that stuff.

6 MR. ANWAR: Okay. Well, we will wait
7 to see -- we'll wait to receive the documents
8 related to the geometric bias and we will reserve
9 our right to keep the deposition open or to reopen
10 it. And I think I only have a few minutes left, so
11 thank you for your time. I'll reserve those final
12 minutes. Thank you for your time today.

13 THE WITNESS: Okay. Thank you.

14 MR. DEAN: Okay. Let's go off the
15 record, if it's okay, for maybe about ten minutes.
16 Take a break. Let me get my thoughts together.
17 I've got some questions. They won't be long, but
18 I've got a few questions.

19 THE VIDEOGRAPHER: Okay. Going off
20 record. The time is 5:56.

21 (A recess transpired.)

22 THE VIDEOGRAPHER: Okay. We are going
23 back on record. The time is 6:15 p.m.

24 EXAMINATION

25 BY MR. DEAN:

1 Q. All right. Mr. Maslia, I just have a
2 few questions, so I don't think we'll be long,
3 okay?

4 A. Okay.

5 Q. Oh, there we go. So earlier you were
6 shown Exhibit 9, which is the Chapter A Tarawa
7 Terrace report, and I want to ask you if you can
8 look at your version and turn to page -- I believe
9 it's A -- excuse me. You were shown Chapter C.

10 A. Hadnot Point?

11 Q. Hadnot Point, page C98. So it looks
12 like it's Chapter C.

13 A. Yeah, I'm trying to find...

14 Q. Can you tell me what that exhibit
15 number was?

16 MS. SILVERSTEIN: 17.

17 THE WITNESS: I've got Exhibit 17.

18 BY MR. DEAN:

19 Q. Okay. So take a look at Exhibit 17;
20 put it in front of you.

21 MR. ANWAR: What page are you on?

22 MR. DEAN: Page C98.

23 THE WITNESS: Okay. C98. Okay. I'm
24 at C98.

25 BY MR. DEAN:

1 Q. Do you remember Mr. Anwar asking you
2 quite a few questions about the sampling for
3 benzene at Hadnot -- or HP602?

4 A. Yes, I do.

5 Q. Okay. And y'all went over -- spent
6 quite a while on reviewing those different sampling
7 results. Do you remember that?

8 A. Yes.

9 Q. Now, can I have exhibit number --
10 MR. DEAN: Do we just want to continue
11 the same number sequence?

12 MR. ANWAR: Whatever you want, yes.

13 (DFT. EXHIBIT 22, Appendix A5
14 Bates-stamped CLJA_Watermodeling_010000942748
15 through 0000942750, was marked for identification.)
16 BY MR. DEAN:

17 Q. I'm just going to use this just to
18 shortcut it. I believe it's the end of -- this is
19 Appendix I-5, Exhibit 22.

20 A. Okay. That's from the Chapter A report
21 for Hadnot Point/Holcomb Boulevard.

22 Q. Correct. Now, you -- you were also
23 asked some questions about the same time -- y'all
24 were having a discussion about when the well was on
25 and when was well was off. Do you remember that?

1 A. Yes.

2 Q. Okay. Can you explain to me as it
3 concerns those sampling that was done post-turning
4 off of the well, what the significance would be for
5 those test results as it concerns the existence of
6 the continuing contamination?

7 MR. DEAN: Object to the form.

8 THE WITNESS: Well, what these plots
9 show, show early time, '51, the contamination in
10 '68, the wells are pumping. November '84, the
11 wells are pumping and shut off. And then it shows
12 the plume -- this is the benzene plume, I believe,
13 yes, benzene. It still shows it migrating under
14 the hydraulic gradient, which is heading east to
15 northwest, okay?

16 Q. Okay. And what is the significance of
17 that with regard to the validity of any of the
18 either calibration or contaminant testing
19 concentrations after the well was shut off?

20 MR. DEAN: Object to the form.

21 THE WITNESS: What that indicates to
22 me, and I think we had this discussion, is even
23 though the tables that we have based on information
24 provided by the Marine Corps for the Navy shows a
25 well shut off, if you're still observing benzene

1 concentrations in the water treatment plant, there
2 had to be some wells pumping, okay? Maybe not
3 continuously, but the plume is still moving past
4 the well. I'm looking at well -- well 602 there,
5 and even in 2008 there's still a plume over there.
6 So if that well was ever turned on again, even
7 though it says out of service, you would -- it
8 would -- you would get benzene.

9 Q. Sorry.

10 A. This is similar to what we observed at
11 Tarawa Terrace with TT26, and even though they shut
12 down TT26, the plume kept moving.

13 Q. Okay. And were samples taken for
14 concentrations in the area of the wells after those
15 wells were shut down?

16 A. Were they?

17 Q. Yes.

18 A. I would have to look and see on the
19 Chapter C report.

20 Q. Now, the Prabhakar Clement article that
21 was previously -- I believe it was marked as an
22 exhibit, the 2000 paper.

23 A. Yes, that one.

24 Q. Okay. Exhibit 1.

25 A. Okay.

1 Q. When did you locate that paper?

2 A. I would say within the last six months.

3 Q. When you were giving your 2010
4 deposition and responding to a question from the
5 plaintiff's lawyer in that case -- well, strike
6 that.

7 Before I go there, who was defending
8 you during that 2010 deposition?

9 A. Mr. Adam Bain from the Department of
10 Justice.

11 Q. Okay. And did you meet with him and
12 prepare for that deposition in -- in -- either by
13 phone or in person?

14 A. I met with him in the afternoon along
15 with attorneys for CDC's Office of General Counsel
16 on the 29th, the day before, for a few hours in the
17 afternoon.

18 Q. Okay.

19 A. And since I had never been deposed
20 before, he went over the ground rules and --

21 Q. And during that meeting or any other
22 conversations y'all had, did Mr. Bain ever question
23 the validity of your work at -- for which you were
24 about to testify to?

25 A. No, he did not.

1 Q. Now, you -- he asked -- excuse me, not
2 he. The plaintiff's lawyer in that case asked a
3 question to which you responded something -- I'm
4 using the word mob, do you remember that?

5 A. Yes.

6 Q. Referring to the work or some of the
7 work that was done here. Were you aware at -- in
8 2010, or had you seen Dr. Clement's paper at that
9 time?

10 A. I had not seen this particular journal
11 article.

12 Q. All right. I'm going to show you
13 Exhibit 23.

14 (DFT. EXHIBIT 23, Author's reply by T.
15 Prabhakar Clement from Ground Water,
16 January-February 2012 Bates-stamped
17 CLJA_Watermodeling_010000092109 through 0000092111,
18 was marked for identification.)

19 MR. ANWAR: And I'm just going to note
20 for the record that conversations that took place
21 when you were an employee of ATSDR and the
22 Department of Justice are privileged.

23 THE WITNESS: Okay.

24 MR. DEAN: And I'm not sure I agree,
25 but I don't think it matters, just for the record.

1 You know what, I don't think I have an extra copy
2 of this. I'll show it to you. I don't have an
3 extra copy of it.

4 MR. ANWAR: I have a copy.

5 MR. DEAN: It's the response to...

6 BY MR. DEAN:

7 Q. So I'm going to show you Exhibit No.
8 23. And can you tell me what that document is?

9 A. This looks like Dr. Clement's response
10 to our editorial review or editorial comment on his
11 2010 paper about hindcasting.

12 Q. And can you read the first -- let me
13 see. I think it's just the first full sentence.

14 A. I believe I've got a copy if you want
15 me to just use my copy and then...

16 Q. Yes, it's -- it's actually the first
17 full sentence. It's a rather long sentence, but...

18 A. Yeah, I got --

19 Q. You can just use this one.

20 A. Oh, okay. Okay. Okay.

21 Q. Can you read into the record --

22 A. The first full sentence?

23 Q. Yes, sir. Now, let's give it a little
24 context. What is Dr. Clement responding to?

25 A. Dr. Clement published an article in

1 Groundwater, in the same journal, I believe it was
2 in 2010, about basically hindcasting, historical
3 reconstruction to us, when is enough enough, and
4 used the Camp Lejeune project as a case study or an
5 example.

6 Q. Okay. And who is Dr. Clement as it
7 concerns his relationship with any of the Camp
8 Lejeune work? What -- what role, if any, did he
9 play at any point in time with regard to Camp
10 Lejeune work?

11 A. Dr. Clement was the hydrogeologist and
12 modeler expert on the National Research Council
13 that assessed ATSDR's Camp Lejeune work.

14 Q. So when people refer to the 2009 NRC
15 report, he was the water modeler that was -- served
16 as one of those panel members?

17 A. He was the only water modeler.

18 Q. Okay. So later on he must have written
19 an article in 2010 about additional information
20 about Camp Lejeune?

21 A. Yes.

22 Q. Okay. And can you read into the record
23 what he said in his response to ATSDR's response?

24 A. Okay. In the response to our
25 editorial.

1 Q. Yes.

2 A. Okay. "The goal of my article was not
3 to review the Camp Lejeune, in parentheses, CLJ,
4 modeling studies." Do you want me to continue?

5 Q. You can -- you can read the next line.

6 A. Okay. "Rather it was to use the CLJ
7 problem as an example to highlight issues related
8 to model complexities and to speak -- and to spark
9 an open debate on when, where, and why we should
10 limit model complexity."

11 Q. Okay. Now, you spent a lot of time,
12 both you and Mr. Anwar, using a word,
13 "uncertainty?"

14 A. Yes.

15 Q. Okay. And of course, lawyers and the
16 general public may use the word "uncertainty"
17 differently than water modelers; is that correct?

18 A. Yes.

19 Q. So what -- when you were referring --
20 using the word with -- uncertainty in responding to
21 questions that used the word "uncertainty", can you
22 explain to the Court and jury what is an
23 uncertainty -- what is uncertainty definition or an
24 uncertainty analysis as you're using it in this
25 deposition?

1 A. I'm using it in this deposition and the
2 modeling analyses.

3 Q. Is uncertainty unusual in water
4 modeling work?

5 A. Not at all.

6 Q. And explain that to the Court, sir.

7 A. Again, that -- that was -- I'll say
8 that was one of our primary concerns and
9 disagreement with the NRC report because it -- it
10 described the uncertainty about data about
11 modeling. We never disagreed that there was
12 uncertainty. An example being you have a sample
13 measurement and, you know, you can have a lower
14 value or a higher value. And so the uncertainty
15 would be that range in there in terms of numerical
16 analysis, like Monte Carlo gives you upper band, a
17 mean, and a lower band. And so that band is the
18 uncertainty or the confidence, okay? So when we're
19 talking about uncertainty, we're also talking about
20 the confidence that we have in the results.

21 Q. Okay. And you expect to see the word
22 "uncertainty" in any -- everyday garden variety of
23 water modeling project?

24 MR. DEAN: Object to form.

25 THE WITNESS: They should. If you look

1 at some of the earlier modeling procedures or
2 protocols of models -- when I say earlier, prior to
3 1980, prior to 19 -- you might see sensitivity
4 analysis and that's part of uncertainty analysis,
5 but good modeling practice would include both
6 sensitivity analysis and an uncertainty analysis.

7 BY MR. DEAN:

8 Q. All right. Let's go to one other area
9 real quick. I don't know the exhibit number. It's
10 the e-mail related to the disclaimer.

11 A. Oh, okay. Here, 11.

12 Q. Okay.

13 MS. SILVERSTEIN: The e-mail is
14 Exhibit 13.

15 THE WITNESS: Here you go. 13.

16 BY MR. DEAN:

17 Q. 13, yes.

18 A. The exhibit is 12.

19 Q. Yeah, the disclaimer. So with regard
20 to Exhibits 12 and 13 having to do with this issue
21 that arose, it appears, in May of 2007, do you
22 remember having a conversation of questions back
23 and forth with Mr. Anwar?

24 A. Yes, I do.

25 Q. Okay. And -- but I didn't hear him

1 ask, nor did I -- or maybe I missed it, but did you
2 -- did someone reach out to you and complain or did
3 some -- something come to you from another
4 department or agency upset about what was being
5 posted on the website that generated the need for a
6 disclaimer on the website?

7 MR. DEAN: Object to form.

8 THE WITNESS: I recall that it was
9 conveyed to me in the source sent to me, the
10 Department of Navy, where or who -- I'm not sure,
11 it could have been a representative at Camp Lejeune
12 that -- my point of contact, but the message was
13 that the Navy was upset about anyone being able to
14 access values on the ATSDR website.

15 Q. And calculate for their own benefit
16 specific numbers?

17 A. Yes, yes, yes.

18 Q. Okay. So up until the time, based on
19 your information from a source that it's the Navy
20 that made this complaint, there was not any
21 consideration for the need for a waiver; is that
22 fair?

23 MR. DEAN: Object to form.

24 THE WITNESS: We -- we did not have
25 that in our protocol so to speak --

1 BY MR. DEAN:

2 Q. Sure.

3 A. -- that we needed to put up a
4 disclaimer.

5 Q. It still today doesn't show up in the
6 written published reports, bound, produced reports,
7 other than on the website?

8 A. No, no, it does not appear in the
9 reports.

10 Q. And when you were communicating with
11 the lawyer about a form of a disclaimer,
12 Ms. Deborah Tress in May 2007, do you know whether
13 or not she was communicating with Adam Bain and the
14 Department of Justice at the same time with regard
15 to this disclaimer?

16 MR. DEAN: Object to form.

17 THE WITNESS: I do not know. We were
18 just told --

19 BY MR. DEAN:

20 Q. And for the record, Ms. Deborah,
21 Debbie, Tress, she's a lawyer, in-house lawyer,
22 employed by the federal government working for the
23 ATSDR CDC in-house counsel?

24 A. At the time of that e-mail, she was the
25 CDC in the CC Office of the General Counsel and we

1 were told she would be the one handling any Camp
2 Lejeune-type issues.

3 Q. Okay.

4 A. From a legal standpoint.

5 Q. So late this afternoon, probably in the
6 last hour or so, you answered some questions with
7 regard to timing of contaminants to Tarawa Terrace
8 TT26. Do you remember that?

9 A. Yes.

10 Q. And I believe it is Alex
11 Spiliotopoulos's report where he has some
12 suggestions and a graph where he has the
13 contaminants going -- instead of going through the
14 water column, dropping into the ground -- are you
15 familiar with what I'm referring to?

16 A. Yes, I am.

17 Q. Okay. How is the most reasonable way
18 in which you expect contaminants that get into the
19 water column -- are they going to continue in the
20 water table or are they going to drop in the
21 ground, is my first question?

22 A. Well, they're going to go along a
23 pathway, a horizontal pathway. And as I put in my
24 rebuttal report and Dr. Konikow explained, they'll
25 -- they'll go horizontally almost until they reach

1 the well, and that's because you've got a cone of
2 depression around the well as the well is pumping,
3 and then go very rapidly vertically into the --
4 into the well.

5 Q. And scientifically, why does -- why --
6 why is that? Why does that occur, in your opinion?

7 A. Because the groundwater is -- velocity
8 is flowing with the gradient. So the gradient is
9 decreasing or the water level is decreasing as you
10 approach the well.

11 Q. Okay. And is the contaminants -- is
12 the -- traveling in the water table versus reaching
13 the well itself, is one faster than the other?

14 A. Yes, the -- the last, let's call it,
15 the few -- few feet or where the cone of depression
16 of the well is going to much more rapidly pull in
17 any contaminants, and the time is going to be much
18 more shortened because of the high velocities at
19 the well and within the cone of depression.

20 Q. I'm sorry. My dog is -- they can't
21 find my -- my wife can't find my dog, so I told her
22 where he was at.

23 Okay. Let's give this back.

24 A. Okay.

25 Q. Between the time -- when did you --

1 remind me when you retired?

2 A. December 31st, 2017.

3 Q. Okay. When you retired on January the
4 -- January of 2018 until the unfortunate time when
5 I gave you a call in '22, did you do any work on
6 Camp Lejeune during that time frame?

7 A. No, I did not.

8 Q. Okay.

9 A. Nor did I speak to anyone.

10 Q. Okay. Let me ask a -- the timing
11 question, let me ask one last different way. For
12 purposes of the timing of contaminants to reach the
13 aquifer, is that different from the time for it to
14 reach the water table?

15 A. Well, conceptually, the aquifer in
16 Tarawa Terrace that we modeled starts at the water
17 table, okay? And we didn't look at -- we didn't on
18 MODFLOW, MT3DMS, did not look above the water
19 table. It was maybe about 10 feet, 15 feet of
20 saturated zone. And so we looked at everything --
21 all our models assume it's at the water table, and
22 that the timed travel through the unsaturated zone,
23 so typically down vertically, would be minimal.

24 MR. DEAN: All right. I believe that's
25 all the questions I have. Thank you.

1 MR. ANWAR: I just have a couple of
2 follow-up questions in my --

3 THE WITNESS: Sure.

4 MR. ANWAR: -- few remaining minutes.

5 EXAMINATION

6 BY MR. ANWAR:

7 Q. Mr. Dean showed you, I think, what was
8 marked as Exhibit 22.

9 A. Yes.

10 Q. If you would like to take a look. My
11 only question about this is Exhibit 22 is the
12 depiction of plumes at Hadnot Point -- the
13 contaminant plume at Hadnot Point, correct?

14 A. Yes, yes, yes. It's the -- you're
15 talking about benzene?

16 Q. For the benzene plume, correct?

17 A. Yes, yes. Let's see, what -- what page
18 you're on?

19 Q. It's A146.

20 A. A146. Okay. Okay. I'm there.

21 Q. My only question about it is that what
22 we're seeing here is a visual depiction of the
23 reconstructed plume based on the model, right?

24 A. That is correct.

25 Q. Okay. I'm going to mark one exhibit.

1 (DFT. EXHIBIT 24, e-mail correspondence
2 Bates-stamped CLJA_ATSDR_BOVE-0000108607 and
3 0000108608, was marked for identification.)

4 BY MR. ANWAR:

5 Q. I'll hand it to you, Exhibit 23. 24.
6 I'm sorry. Let me fix that. I can't count. I
7 will represent to you this is an e-mail exchange
8 that starts between you and Dr. Clement and then
9 that you forward on to the ATSDR team in February
10 of 2008. Would you agree with that?

11 A. Yes.

12 Q. Okay. And in the -- the e-mail
13 exchange -- the e-mail from Clement, Dr. Clement,
14 to you at the bottom of the chain, he's offering
15 some -- some -- his sort of feedback and some
16 compliments about the work that you-all did with
17 respect to the Tarawa Terrace analysis, correct?

18 A. It does not specifically say Tarawa
19 Terrace. However, given the date of that, it would
20 have been Tarawa Terrace because we would not have
21 probably even started on Hadnot Point.

22 Q. Sure. And the subject says sensitivity
23 analysis on well --

24 A. Oh, okay. Okay.

25 Q. -- TT26, right?

1 A. Okay. Yes.

2 Q. Okay. And he says, "yesterday I read
3 most of your report and I found them to be very
4 thoughtfully organized. It is a complex problem,
5 but you guys did the best possible job a modeler
6 can. They are lucky to have you guys as a modeling
7 team. Thanks for your support." Did I read that
8 right?

9 A. Yes.

10 Q. Okay. And then you forward it to your
11 team and you say, "look at the second paragraph
12 from Dr. Clement, a member of the National Research
13 Council committee on contamination of drinking
14 water at Camp Lejeune. It's nice to get words of
15 praise from unbiased and technically competent
16 colleagues about our abilities and work." Did I
17 read that correctly?

18 A. Yes.

19 Q. Okay. And I understand that
20 subsequently the NRC report was published, correct,
21 in 2009?

22 A. That's correct, that's correct.

23 Q. And after the NRC report, Dr. Clement
24 published his -- his article on hindcasting, and
25 then you-all -- you and Dr. Aral and the ATSDR team

1 had a response, and then he published sort of a
2 response to your response, correct?

3 A. Right, that's correct.

4 Q. Okay.

5 A. That's typically what's done in the
6 journal article type.

7 Q. Sure. Do you -- in your view, as you
8 sit here today, is Dr. Clement still an unbiased
9 and technically competent colleague?

10 MR. DEAN: Object to the form.

11 THE WITNESS: Yes, I never -- I never
12 said he was biased. We always said it was the NRC
13 report, the final -- the final report. Again, I
14 think we discussed this in my previous deposition,
15 that that is what really caught the entire team by
16 surprise because we were providing information and
17 data to Dr. Clement. I think we also provided it
18 to Dr. Knuckles and some other people.

19 Q. Sure.

20 A. And the feedback was this is, you know,
21 great -- great stuff, great job and all of that.
22 And the report -- and especially the -- I guess,
23 what is it, the public summary or whatever, really
24 just took a 180-degree opposite turn.

25 Q. Okay.

1 A. Okay.

2 MR. ANWAR: Those are all the questions
3 I have. Thank you.

4 EXAMINATION

5 BY MR. DEAN:

6 Q. Mr. Maslia, he's -- I'm just focusing
7 on Exhibit 24, and Mr. Anwar is pointing out the --
8 your use of the word "unbiased" --

9 A. Right.

10 Q. -- with respect to the reference to
11 Dr. Clement on February 21st, 2008. Do you see
12 that?

13 A. Yes, I do.

14 Q. At the time that e-mail was sent and
15 words that you're issuing, the NRC report had not
16 been issued yet, right?

17 A. Yes, you're correct.

18 Q. And it had not been issued until July
19 -- I think it's July 2009.

20 A. June 2009.

21 Q. June 2009. Have you now read Susan
22 Martel's deposition and all of the exhibits that
23 are attached to it?

24 A. Yes.

25 Q. And do you have an opinion as to

1 whether or not the NRC was, in fact, biased or
2 unbiased in the issuance of that final report?

3 A. The NRC report, I believe, contained
4 numerous -- numerous -- it contained -- it
5 contained mistakes, mischaracterizations, and it
6 appeared to us to be -- and I'm talking about the
7 project team, including the epidemiologists and
8 whatever toxicologist, that it was a biased report.

9 MR. DEAN: Thank you. I have no
10 further questions.

11 MR. ANWAR: Nothing from me. Thank
12 you.

13 THE WITNESS: Thank you.

14 THE VIDEOGRAPHER: Okay. Then we're
15 going off record the time is 6:49 p.m. This
16 concludes today's deposition.

17 (The witness, after having been advised
18 of his right to read and sign this transcript, does
19 not waive that right.)
20
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25

CERTIFICATE OF REPORTER

I, Lauren A. Balogh, Registered Professional Reporter and Notary Public for the State of South Carolina at Large, do hereby certify that the foregoing transcript is a true, accurate, and complete record.

I further certify that I am neither related to nor counsel for any party to the cause pending or interested in the events thereof.

Witness my hand, I have hereunto affixed my official seal this 18th day of March, 2025 at Myrtle Beach, Horry County, South Carolina.



Lauren A. Balogh
My Commission expires
March 19, 2030

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